AXIOMTEK

OPS883 Series

Intel Open Pluggable Specification Box

User's Manual

RoHS

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Safety Approvals

CE Marking

■ FCC Class A

◆ **FCC Compliance**

This equipment has been tested in compliance with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are mean to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

A. Increase the separation between the equipment and receiver.

B. Connect the equipment to another outlet of a circuit that does not connect with the receiver.

C. Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with the emission limits.

Safety Precautions

Before getting started, please read the following important safety precautions.

1. The OPS883 series does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.

2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.

3. Disconnect the power cord from the OPS883 series before any installation. Be sure both the system and external devices turned OFF already. Make sure the OPS883 series set to ground properly.

4. The brightness of the flat panel display will be getting weaker as frequently used. However, the operating period varies depending on the application environment.

5. The flat panel display is not susceptible to shock or vibration. When assembling the OPS883 series, make sure toinstall it securely.

6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below 0℃ or above 45℃. It may damage the equipment.

7. External equipment intended for connection to signal input/out or other connectors shall comply with relevant UL/IEC standard.

8. Do not open the back cover of the system. If opening the cover for maintenance is necessary, only allow technicians to implement it. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

9. Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.

10. Please wear a wrist-grounding strap if you handling boards and eletronic components.

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the OPS883 series. Chapter 1 includes the following sections:

■ **General Description**

■ **Specification**

■ **Michanical Assembly**

■ **Package List**

1.1 General Description

Intel Open Pluggable Specification (OPS) Compliance

OPS883 series is based on the 4th generation Intel® Core™ processor on board with Intel® Q87 Express Chipset platform and it also future products. The Pluggable Module is dedicated to provide an interchangeable solution to the digital signage media players with compatible connector. This document provides the module form factor, connector specification, reference thermal solution, and boundary conditions in order to ensure the functionally of the module in all compatible display panel system.

OPS883 series meets Intel Open Pluggable Specification for design and development, simplifying system upgrade maintenance for manufacturers and developers that supports Intel® 4th Generation Core I series family, which stand for high flexible and user-friendly digital signage applications.

Easy maintenance

OPS883 series offers a best solution for digital signage market. Compliant with Intel OPS architecture, digital signage players are capable of deploying interchangeable systems faster and easing upgrading/maintenance, while lowering costs for development and implementation. Additionally, having the ability to simply slot-in and out the unique pluggable engine box makes daily hassle easier and faster for users.

OPS883 series has pluggable engine box design; you can change storage, DRAM and update configurations more easily

1.2   System Specifications

1.2.1   Main CPU Board

● **CPU**

  ■ LGA1150 socket type 4th generation Intel® Core™ i5/i3/Celeron Processor

● **System Chipset**

  ■ Intel® Q87 PCH

● **BIOS**

  ■ American Megatrends Inc.

    UEFI (Unified Extensible Firmware Interface) BIOS.

● **System Memory**

  ■ One socket 204-pin DDR3 1333/1600MHz SO-DIMM, maximun up to 8GB

● **Wireless Module (Optional)**

  ■ Optional IEEE802.11 b/g/n, Bluetooth 2.0

1.2.2   I/O System

● **Standard I/O**

  ■ One HDMI (with 4K solution)

  ■ Two USB ports 2.0

  ■ One USB ports 3.0

  ■ One RS-232(COM2)

  ■ One Power on /Off button

  ■ One Reset button

■ **Ethernet**
  ■ 10/100/1000Mbps Ethernet (with Intel® I217)

● **Audio**

  ■ Line-out/ Mic-in

● **Expansion**

  ■ One Full-size PCI Express Mini card (USB+PCIe signals supported)

● **Storage**

  ■ One. 2.5" SATA HDD tray

  ■ One mSATA option through Mini PCIe by SSW1 selection

● **Net Weight**

  ■ 0.9Kg(1.99 lb) without cooler

- **Dimension (Main Body Size)**
  - 200 mm(W) x 119 mm(D) x 30 mm(H)
- **Operation Temperature**
  - 0℃ to 45℃ (with airflow 1.2 m/s)

NOTE: All specifications and images are subject to change without notice.

1.3   Mechanical Assembly

1.3.1   Dimensions

This diagram shows you dimensions and outlines of the OPS883 series

The overall dimension of the module including the mounting frame is 200mm x 119mm x 30mm, and it shows the location of the screw holes of front panel as well as the security lock.
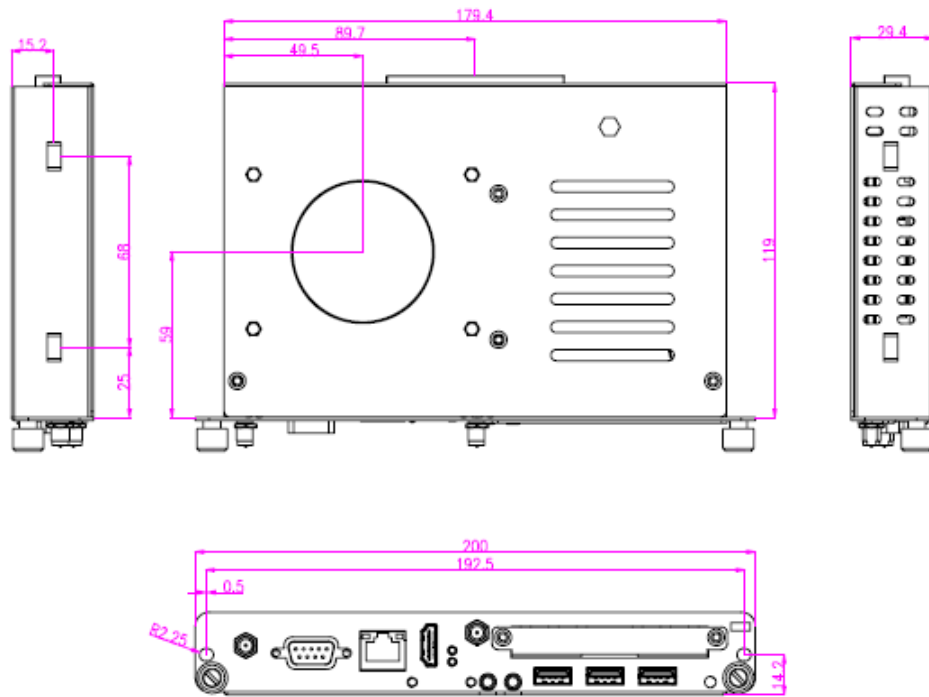
※While plugging the OPS module, please make sure the heat sink side of OPS module toward the outside. Axiomtek will be out of reasonability if there is any damage occurred due to it.

1.3.2 I/O outlet

The following figures show you the locations of the OPS883 series I/O outlets.
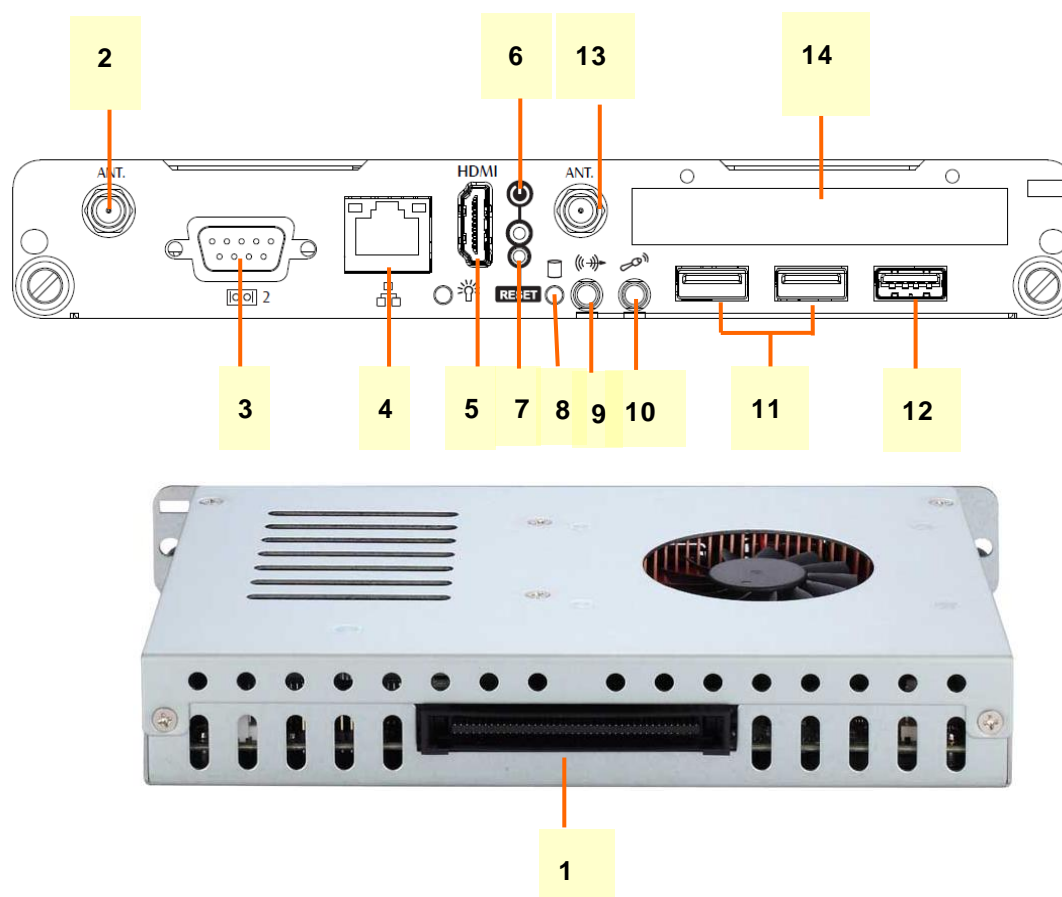
No.	Connector	No.	Connector
1	JAE TX-25	8	HDD indicator
2	Antenna opening	9	Audio(Line-out)
3	RS-232	10	Audio(Mic.-in)
4	Ethernet	11	2 x USB 2.0
5	HDMI Output	12	1 x USB 3.0
6	Power Switch	13	Antenna opening
7	Reset	14	2.5" SATA HDD tray

1.3.3   Mechanical Specifications

OPS883 series is docked in the reference display panel

The OPS883 Pluggable Module docked at a display panel system.

In this reference design, the module is docked and undocked in the vertical direction.

NOTE: Please contact Axiomtek for available option display panel.
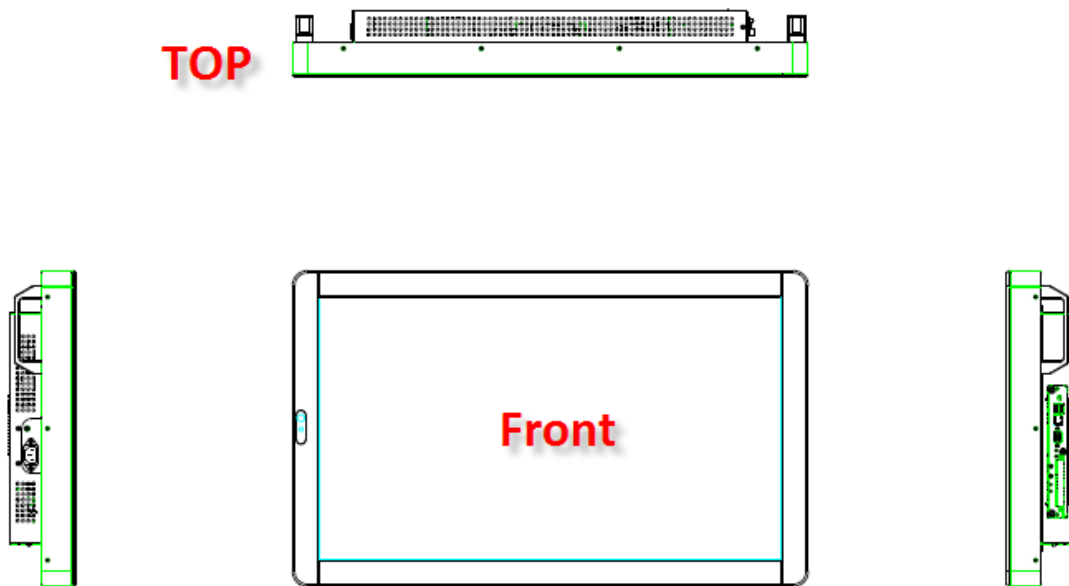
Exploded View of the Pluggable Module
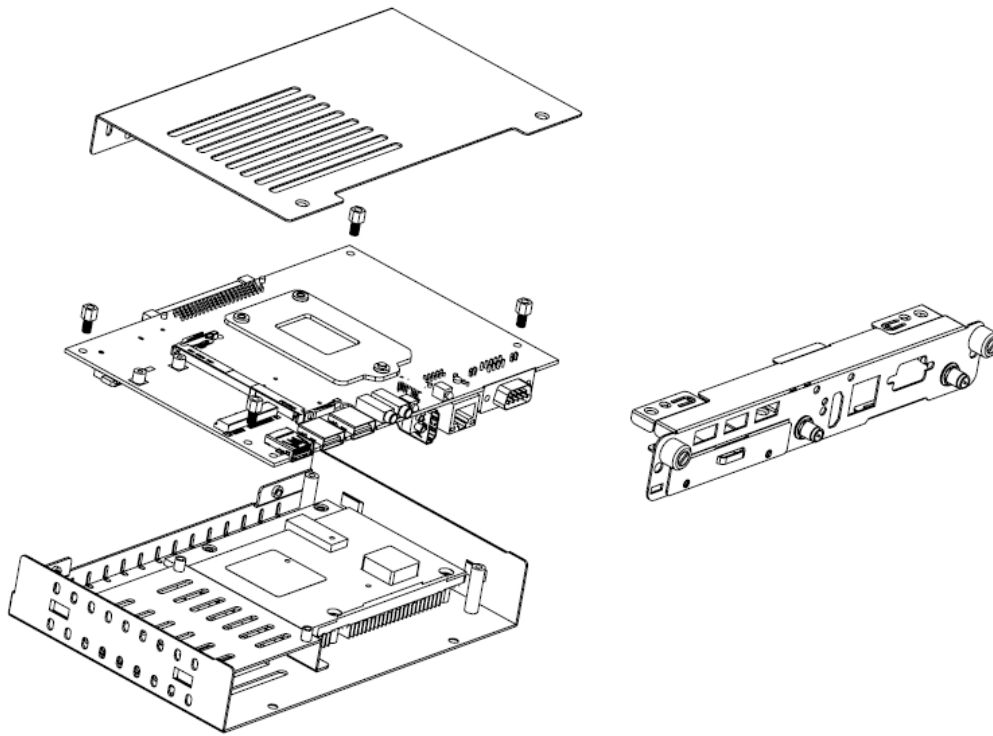
The Guide Rail Mechanism for the OPS883 series Module

You can use the rails alongside of OPS883 series Module to dock and undock the plug connector at the back of the module to connect with docking board. There are two lock pins on each side of the rail, and they serve as the locking mechanism to attach the lock holes on the series module.

FRONT VIEW

BACK VIEW
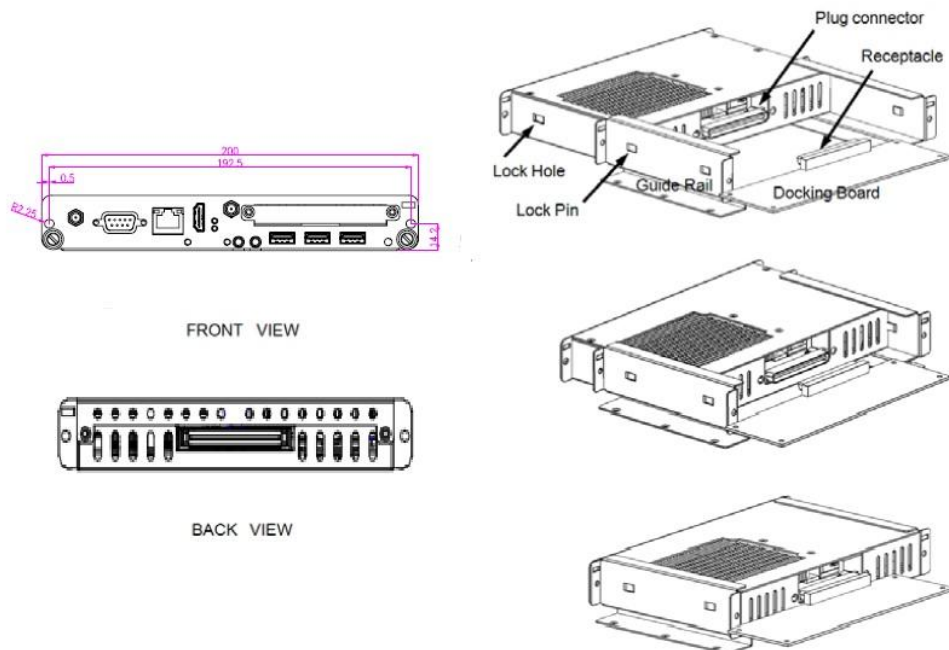
Location of Lock Hole on the Pluggable Module

FRONT VIEW

BACK VIEW
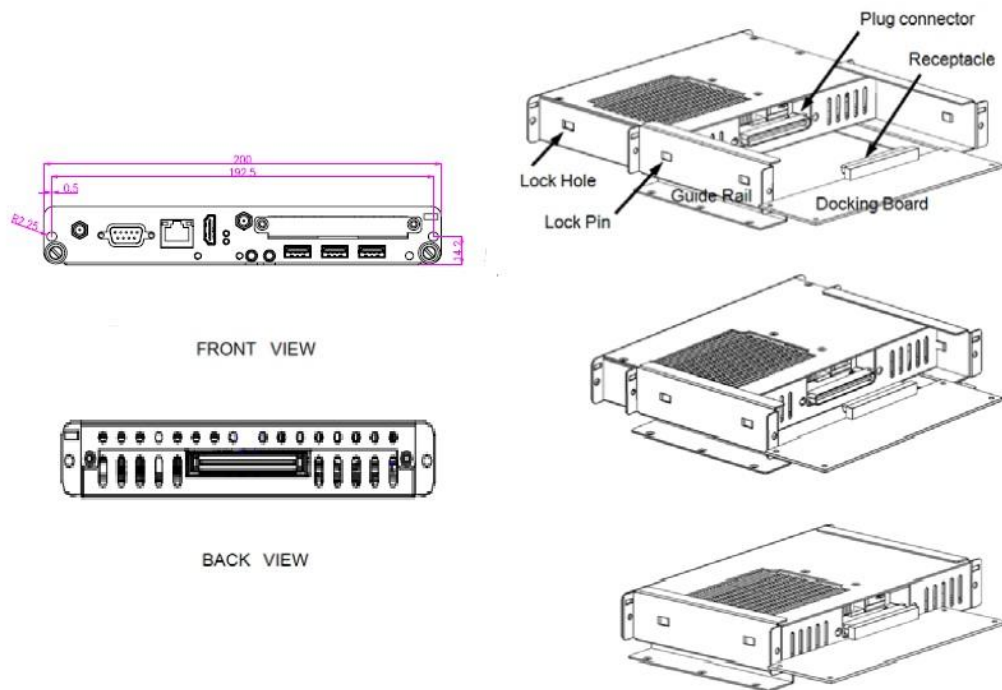
*The drawing is base on Intel Open Pluggable Specification

Dimensions of the Guide Rail
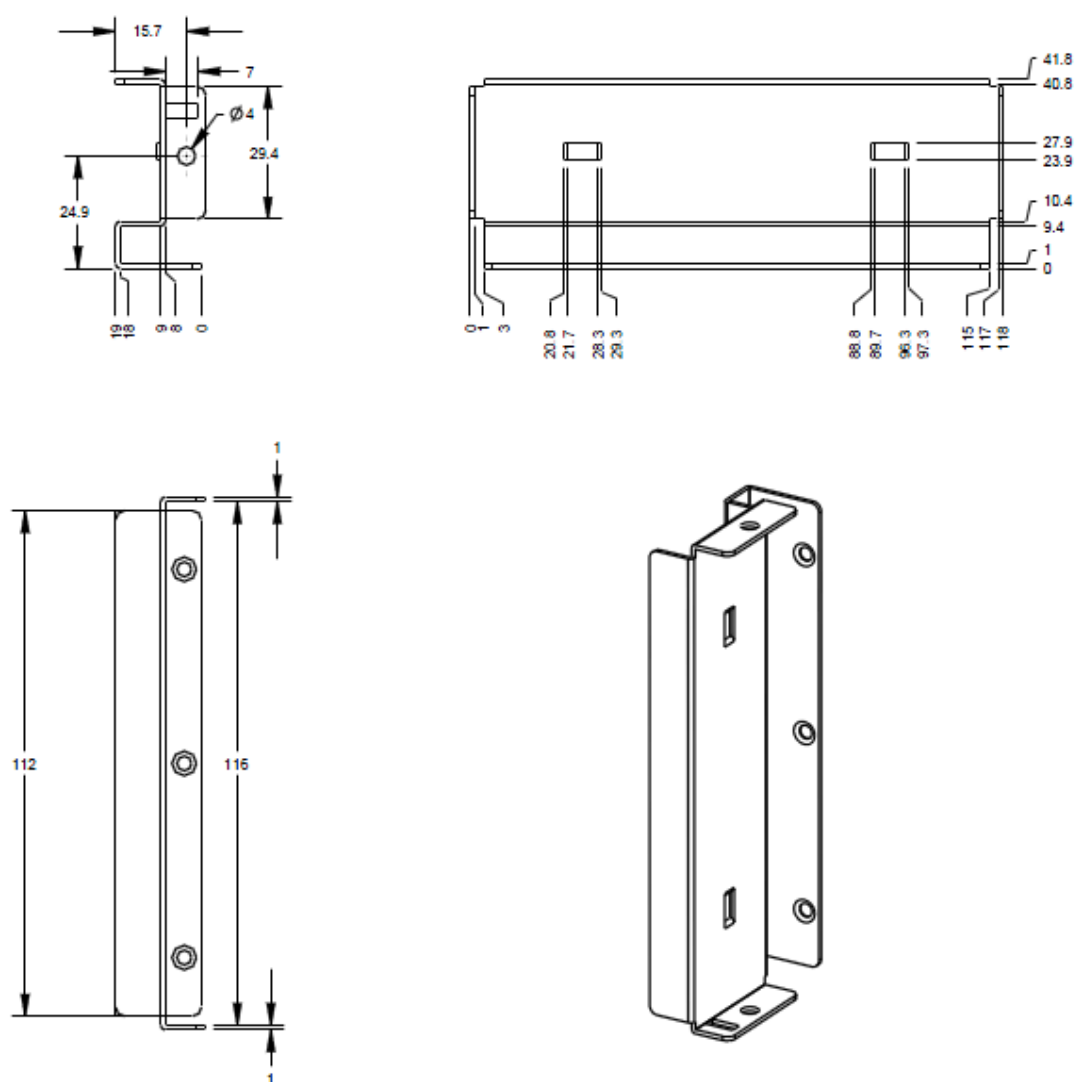
Location of JAE TX25 Plug Connector

Please refer to the following drawing for location of the JAE TX25 plug connector. Pin 1 of the connector is located at 114.8 mm from the edge of the module, and 106.9 mm from the inner side of the front panel. For mating tolerance of TX25 plug connector and TX24 receptacle connector, please refer to the JAE specification
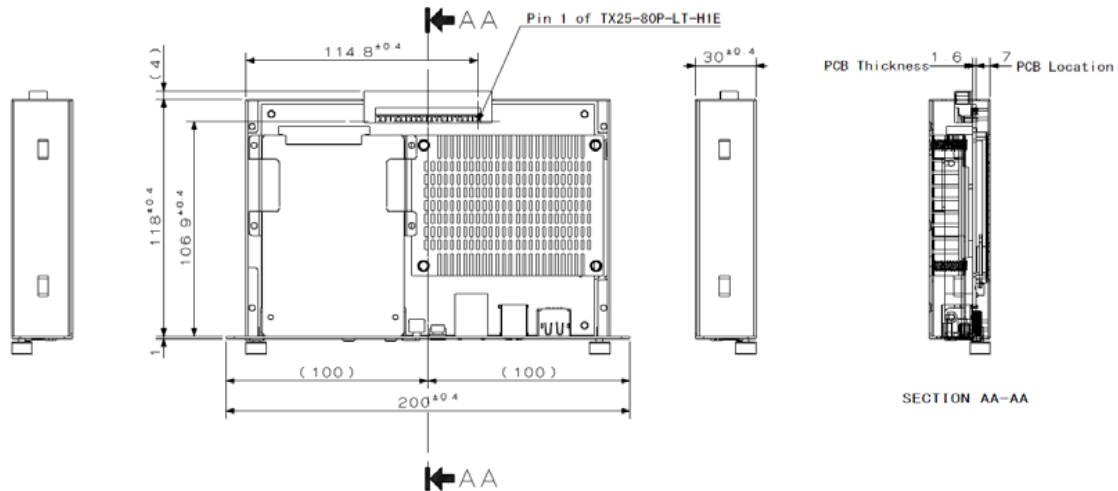
Vent Holes at the Pluggable Module Back Panel

On the OPS883 series module, it is recommended by Intel that some vent holes be opened at the back so that hot air can escape more easily from the module that the FAR in on both sides of the module back panel should be greater than 0.25.
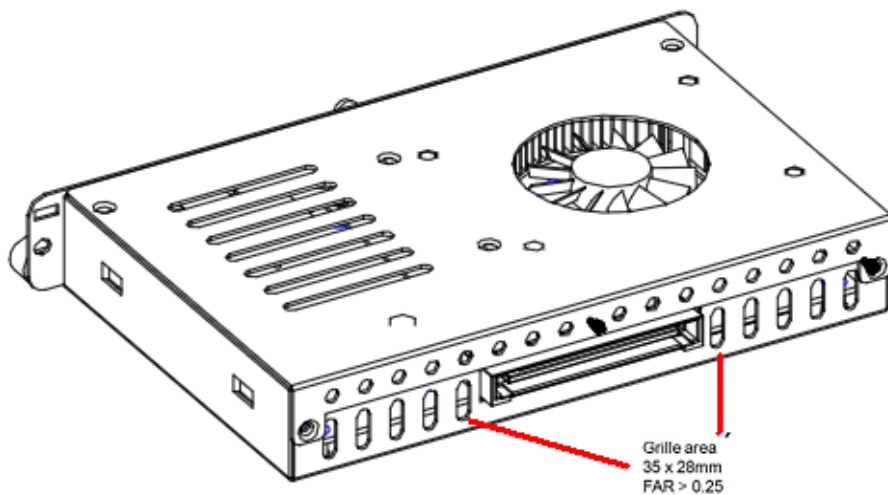
1.3.4   Reference Design

Display Panel Rear View − Internal
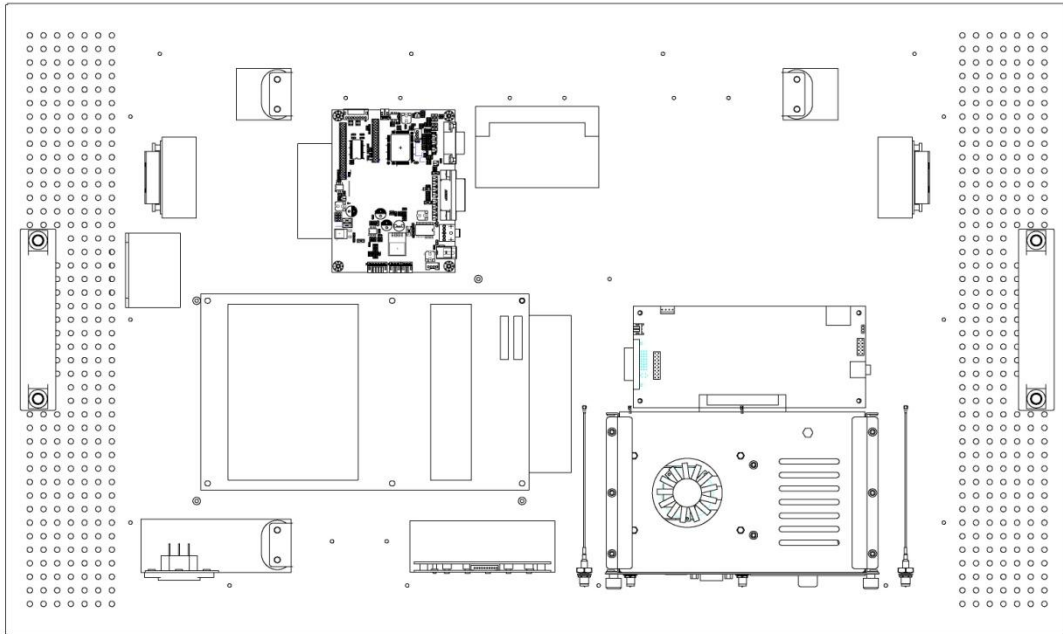
The digital signage OPS883 series prototype is based on a 32" display panel with the functional blocks illustrated. It is mainly a 3-board partitioning design consisting of the pluggable module, docking board and the panel control board.

1.4   Package List

When you receive the OPS883 series, the bundled package should contain the following items:

- **OPS883 System x 1**

- **CD x 1**

- **THERMAL GREASE(Syringe 1G)**

- **M2 x 5 screw x 2**

- **M4 x 6 screw x 2**

If you cannot find the package or any items are missing, please contact Axiomtek distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The OPS883 series is convenient for your various hardware configurations, such as Storage, Memory Module.

The chapter 2 will show you how to install the hardware. It includes:

■   **CPU, HDD, DRAM, Wireless & 3G module Installation**

■   **Pluggable Module Method**

2.1   CPU, Storage, DRAM, Wireless & 3G module Installations

The OPS883 series model offers a convenient drive bay module for users to install CPU, Storage, DRAM, wireless & 3G modules. Please follow the steps:

CPU Installation

Step 1   Turn off the system, Loosen the screws as illustrated.

Step 2   Remove the cover with caution then lossen two screws of front I/O bracket.

Step 3   Refer to the following photo to loosen the screws and pillars in advance.

NOTE: Please pull out power cable of system fan while installation.

Step 4   Then turn over the chassis as per illustrated.

NOTE: Please be aware of the CPU FAN Cable, while installing the CPU, you do not need to pull out the cable to avoid cable damage.

Step 5   Remove the CPU waring mylar and then pull out the desktop CPU socket pole.
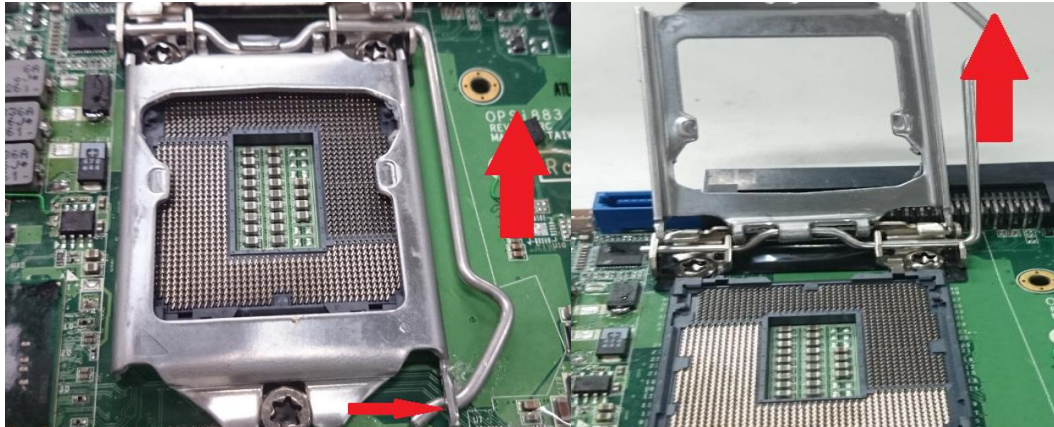
Step 6   Insert the CPU into the slot. Please follow the indication on CPU as mark and slot to ensure the proper insertion of the CPU

Step 7   Please make sure CPU has inserted into the socket and the latch is closed.
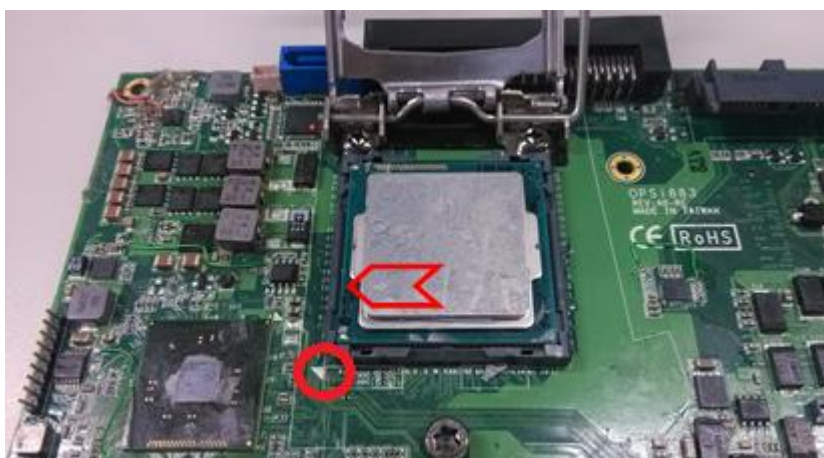
Step 8   Press pole of the CPU socket firmly, as per illustrated.
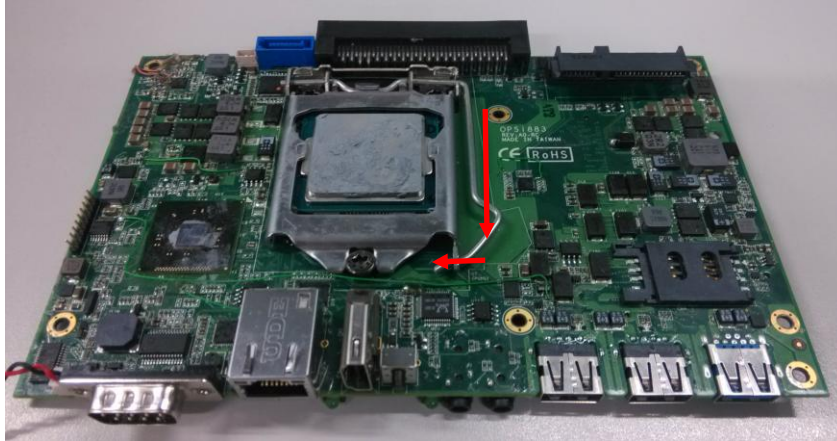
DRAM Install

Step 1   Loosen the screws on the real of chassis as illustrated.

Step 2   After losing the screws, extract the real of chassis out of the module.

Step 3   Place the memory module into the socket and press it firmly. The socket latches are levered upwards and clipped on to the edges of the DIMM.

2.5" HDD/ SSD Instllation

The OPS883 series provides one 2.5" SATA HDD tray to install 2.5" HDD. When please refer to the following instructions and illustration.

Step 1   Loosen the screws per illustrated.

Step 2   Please refer to the below photo to connect the target 2.5" HDD/SSD with HDD's bracket.
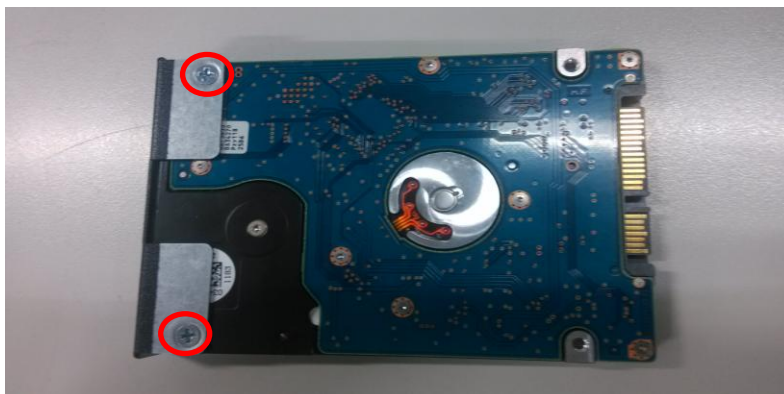
Step 3   Then plug HDD drive in to HDD connector.

Step 4   Finally, fasten two screws on HDD cover firmly.

Mini PCIe Module Installation

The OPS883 series provides one Mini card slot for user to install mini cards, please refer to the following instructions and illustration.

Step 1   Loosen the screws per illustrated.

Step 2   Then open the cover carefully.

Step 3   You can find the position of Mini PCIe slot and please insert it then fasten screw of Mini PCIe module by yourself.

SIM Card & Antenna Cable Installation

Step 1 **Install SIM Card module. Place the SIM Card module into the socket and press it firmly down until it is fully located.**

Step 2 **The following photos show you how to connect antenna cable by yourself.**
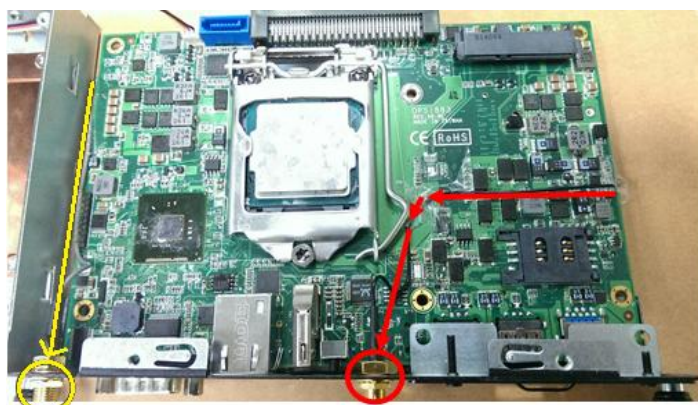
2.2   Pluggble Module Method

NOTE: *Please contact Axiomtek for the available option display*
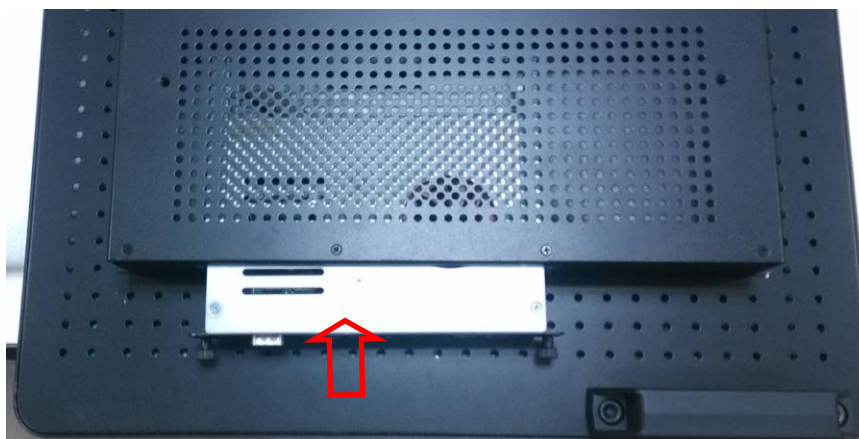
Step 1   Pluggable the box into display

Caution: When plugging OPS883 series module into an OPS display, make sure the module's heat sink is facing outside of the display. Axiomtek is not responsible for any damage caused by wrong installation.

Step 2   Fasten the screws as illustrated
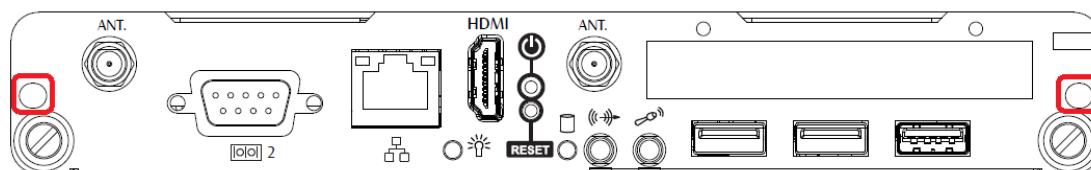
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CHAPTER 3
CONNECTORS

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

3.1   Connectors

Connectors connect this board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly connected.

Here is a summary table shows you all connectors on the board.

Connector	Label
JAE TX25 Connector	CN1
CPU FAN	CN2
SIM Slot	CN4
HDMI	CN5
POWER & RESET BUTTON	CN6
Audio MIC-IN Connector	SCN2
Audio LINE-OUT Connector	SCN3
Mini Card Slot	SCN1
Battery 2 PIN	BAT1
ATX Auto Power On	SSW1
Clear CMOS	
PCIe Signal Switch (Reserve)	
SLP_S3 Docking Support	
SATA & SATA Power Connector(5V Only)	SATA1
RJ45 (I217LM)	LAN1
USB3.0 Port 1	SUSB1
USB2.0 Port 2	SUSB2
USB2.0 Port 3	SUSB3
COM Port	COM2
HDD LED	SLED1
Power LED	SLED2

Board Layout
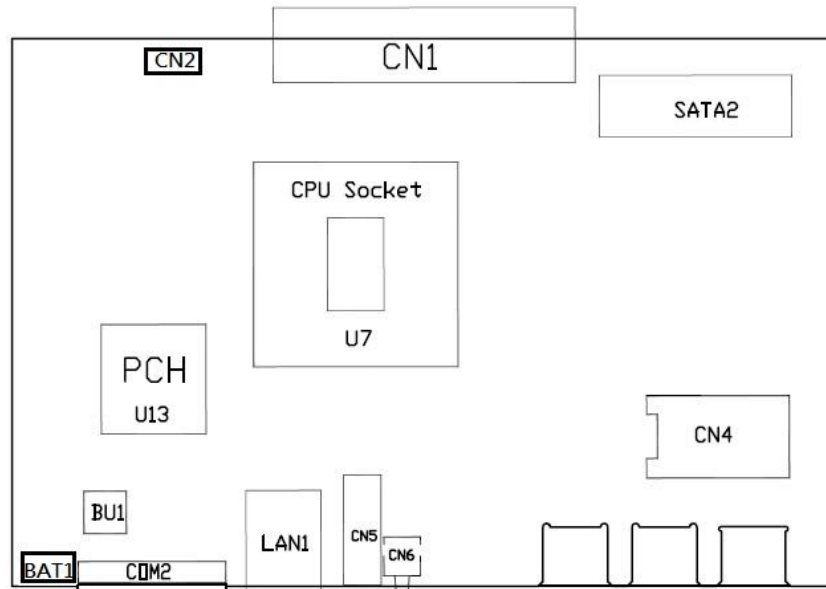
Top side
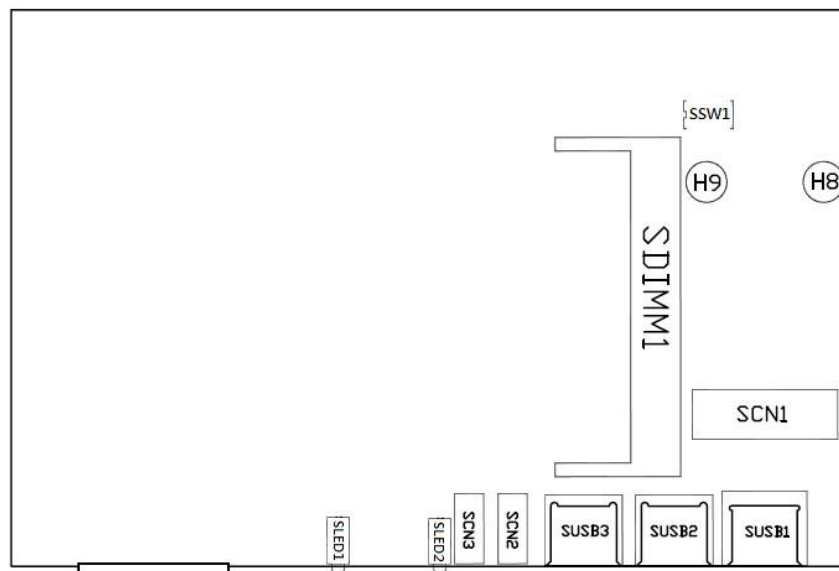
Bottom side

3.1.1   JAE TX25 Connector (CN1)

Connector JAE TX25 CN1 is for JAE interface support.

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DDP_3N	2	DDP_3P	3	GND	4	DDP_2N
5	DDP_2P	6	GND	7	DDP_1N	8	DDP_1P
9	GND	10	DDP_0N	11	DDP_0P	12	GND
13	DDP_AUXN	14	DDP_AUXP	15	DDP_HPD	16	GND
17	TMDS_CLK-	18	TMDS_CLK+	19	GND	20	TMDS0-
21	TMDS0+	22	GND	23	TMDS1-	24	TMDS1+
25	GND	26	TMDS2-	27	TMDS2+	28	GND
29	DVI_DDC_DATA	30	DVI_DDC_CLK	31	DVI_HPD	32	GND
33	+12V~+19V	34	+12V~+19V	35	+12V~+19V	36	+12V~+19V
37	+12V~+19V	38	+12V~+19V	39	+12V~+19V	40	+12V~+19V
41	RSVD	42	RSVD	43	RSVD	44	RSVD
45	RSVD	46	RSVD	47	RSVD	48	RSVD
49	SLP_S3	50	SYS_FAN	51	UART_RXD	52	UART_TXD
53	GND	54	StdA_SSRX-	55	StdA_SSRX+	56	GND
57	StdA_SSTX-	58	StdA_SSTX+	59	GND	60	USB_PN2
61	USB_PP2	62	GND	63	USB_PN1	64	USB_PP1
65	GND	66	USB_PN0	67	USB_PP0	68	GND
69	AZ_LINEOUT_L	70	AZ_LINEOUT_R	71	NC	72	PB_DET
73	PS_ON#	74	PWR_STATUS	75	GND	76	GND
77	GND	78	GND	79	GND	80	GND
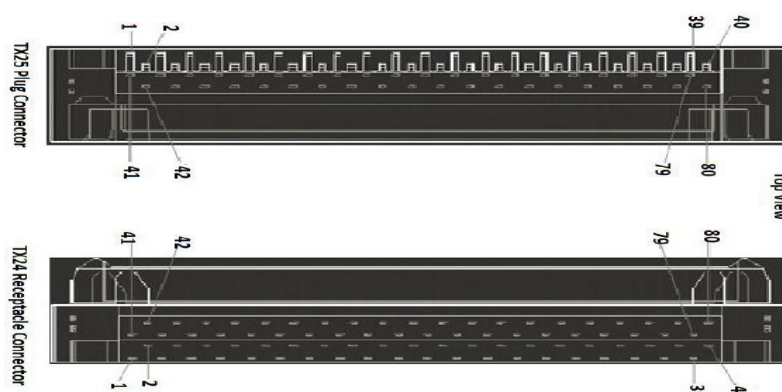
3.1.2   CPU FAN (CN2)

CN2 provides power input and FAN control signal, and you can connect CPU FAN through this connector.

Pin	Signal
1	GND
2	FAN CTRL
3	VCC
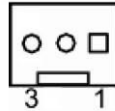
3.1.3   SIM Card Slot (CN4)

This slot supports inserting SIM Card. In order to work properly, the SIM Card must be used together with 3G module. It's mainly used in 3G wireless network application.

Pin	Signal
1	PWR
2	RST
3	CLK
4	NC
5	GND
6	VPP
7	I/O
8	NC
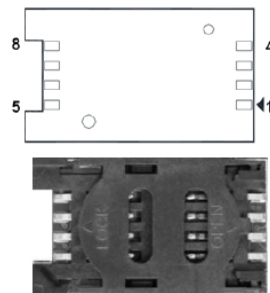
3.1.4   HDMI Connector (CN5)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

Pin	Signal	Pin	Signal
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT Clock+
11	GND	12	HDMI OUT Clock-
13	N.C.	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		
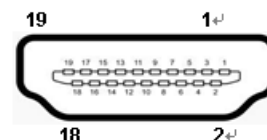
3.1.5   Power & Reset Button (CN6)

CN6 is the reset switch that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

Pin	Signal
1	GND
2	GND
3	RST_BTN
4	PWR_BTN
5	GND
6	GND
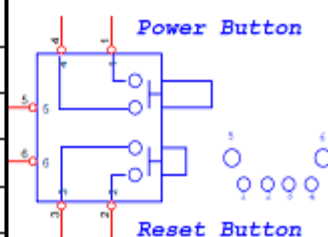
3.1.6   Audio MIC-IN Connector (SCN2)

Pin	Signal
1	GND
2	MIC_IN_L
3	MIC_IN_R
10	MIC_DETECT
11	GND
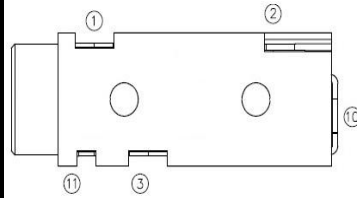
3.1.7   AudioLine-Out Connector (SCN3)

Pin	Signal
1	GND
2	LINE_OUT_L
3	LINE_OUT_R
10	LINE_OUT _DETECT
11	GND
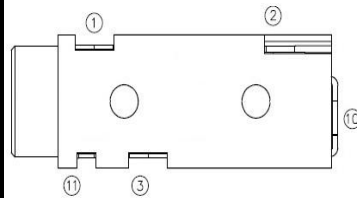
3.1.8   Battery 2 PIN (BAT1)

Pin	Signal
1	+VBAT
2	GND
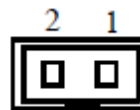
3.1.9 Mini Card Slot (SCN1)

This is a PCI-Express Mini Card connector which supports PCI-Express x1 link, USB 2.0 link and 3G/LTE wireless network application.

SCN1 also supports SATA signal for mSATA device, users can adjust it to SATA mode through BIOS configuration.

Pin	Signal	Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VAUX	3	RVD1
4	GND	5	RVD2	6	+1.5V
7	CLKREQ#	8	RVD19	9	GND
10	RVD18	11	REFCLK-	12	RVD16
13	REFCLK+	14	RVD15	15	GND
16	RVD14	17	RVD3	18	GND
19	RVD4	20	+3.3VAUX	21	GND
22	PERST#	23	PERN0	24	+3.3VAUX
25	PERP0	26	GND	27	GND
28	+1.5V	29	GND	30	SMB_CLK
31	PETN0	32	SMB_DATA	33	PETP0
34	GND	35	GND	36	USB_D-
37	RVD5	38	USB_D+	39	+3.3VAUX
40	GND	41	+3.3VAUX	42	LED_WWAN#
43	RVD8	44	LED_WLAN#	45	RVD9
46	LED_WPAN#	47	RVD10	48	+1.5V
49	RVD11	50	GND	51	RVD12
52	+3.3VAUX	53	NH1	54	NH2
55	NH3	56	NH4		
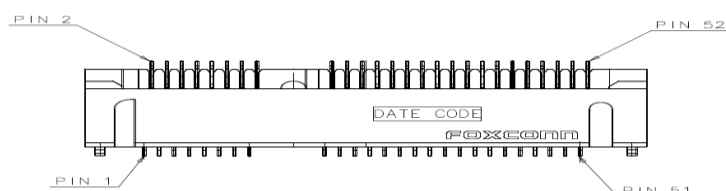
3.1.10 SSW1 Setting

ATX/AT Mode Setting/ Clear CMOS/ SLP_S3_Docking (SSW1-Pin8).

AT or ATX Select (SSW1- Pin1)

Description	Settings
ATX	OFF (Default)
AT	ON
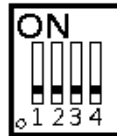
Clear CMOS (SSW1- Pin2)

Description	Settings
Clear CMOS	OFF (Default)
Clear CMOS	ON

PCIe Signal Switch (SSW1- Pin3)

Description	Settings
PCIe	OFF (Default)
mSATA	ON

SLP_S3_Docking (SSW1- Pin4)

Description	Settings
NON-SLP_S3	OFF (Default)
SLP_S3	ON
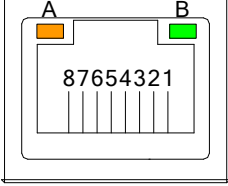
3.1.11   SATA & SATA Power Connector (SATA1)

Pin	Signal	Pin	Signal
S1	GND	P1	+3.3V
S2	SATA0_TX+	P2	+3.3V
S3	SATA0_TX-	P3	+3.3V
S4	GND	P4	GND
S5	SATA0_RX-	P5	GND
S6	SATA0_RX+	P6	GND
S7	GND	P7	+5V
		P8	+5V
		P9	+5V
		P10	GND
		P11	GND
		P12	GND
		P13	NC
		P14	NC
		P15	NC

S1   S7   P1   P15
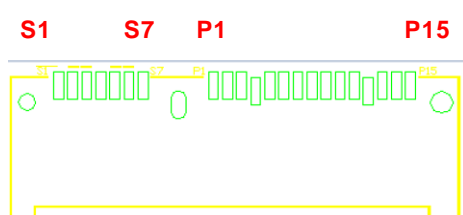
3.1.12   RJ45 (I217LM) (LAN1)

The RJ-45 connector LAN1 is for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ-1(For 1000 base T-Only)
5	RJ-1(For 1000 base T-Only)
6	Rx- (Data reception negative)
7	RJ-1(For 1000 base T-Only)
8	RJ-1(For 1000 base T-Only)
A	Active LED
B	Speed LED

3.1.13   USB 3.0 Port (SUSB1)

Pin	Signal
1	USB3_POWER
2	USB D0-
3	USB D0+
4	GND
5	USB3_SSRX0-
6	USB3_SSRX0+
7	GND
8	USB3_ SSTX0-
9	USB3_ SSTX0+
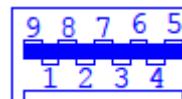
3.1.14 USB 2.0 Port (SUSB2/3)

Pin	Signal
1	USB_POWER
2	USB D0-
3	USB D0+
4	GND

3.1.15 COM Port (COM2)

The COM Port connector is a standard DB-9 connector. The pin assignment of RS-232 is listed on the following table

Pin	Signal
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
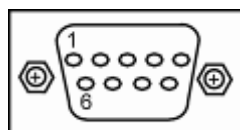
Power LED

The Power LED lights up when the system is powered ON

HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed.

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CHAPTER 4
AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

4.1   Starting

To enter the setup screens, follow the steps below:

➢   **Turn on the computer and press the <Del> key immediately.**

➢   **After you press the <Del> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.**

4.2   Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

NOTE: Some of navigation keys differ from one screen to another.

Hot Key	Description
← →Left/Right	The Left <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+− Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

● **BIOS Information**

> **System Date/Time**

Use this option to change the system date and time. Highlight System Date or System Time using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Enter> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

4.4   Advanced Menu

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

➢   **ACPI Settings**
➢   **S5 RTC Wake Settings**
➢   **Trusted Computing**
➢   **CPU Configuration**
➢   **SATA Configuration**
➢   **PCH-FW Configuration**
➢   **AMT Configuration**
➢   **USB Configuration**
➢   **F81801 Super IO Configuration**
➢   **F81801 H/W Monitor**

For items marked with "►", please press <Enter> for more options.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**	
►ACPI Settings ►S5 RTC Wake Settings ►Trusted Computing ►CPU Configuration ►SATA Configuration ►PCH-FW Configuration ►AMT Configuration ►USB Configuration ►F81801 Super IO Configuration ►F81801 H/W Monitor	System ACPI Parameters. → ← : Select Screen ↑↓ : Select Item Enter : Select + / - : Change Opt. F1 : General Help F2 : Previous Values F3 : Optimized Defaults F4 : Save & Exit ESC : Exit
Version 2.14.1219 Copyright (C) 2011 American Megatrends, Inc.	

● **ACPI Settings**

You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.
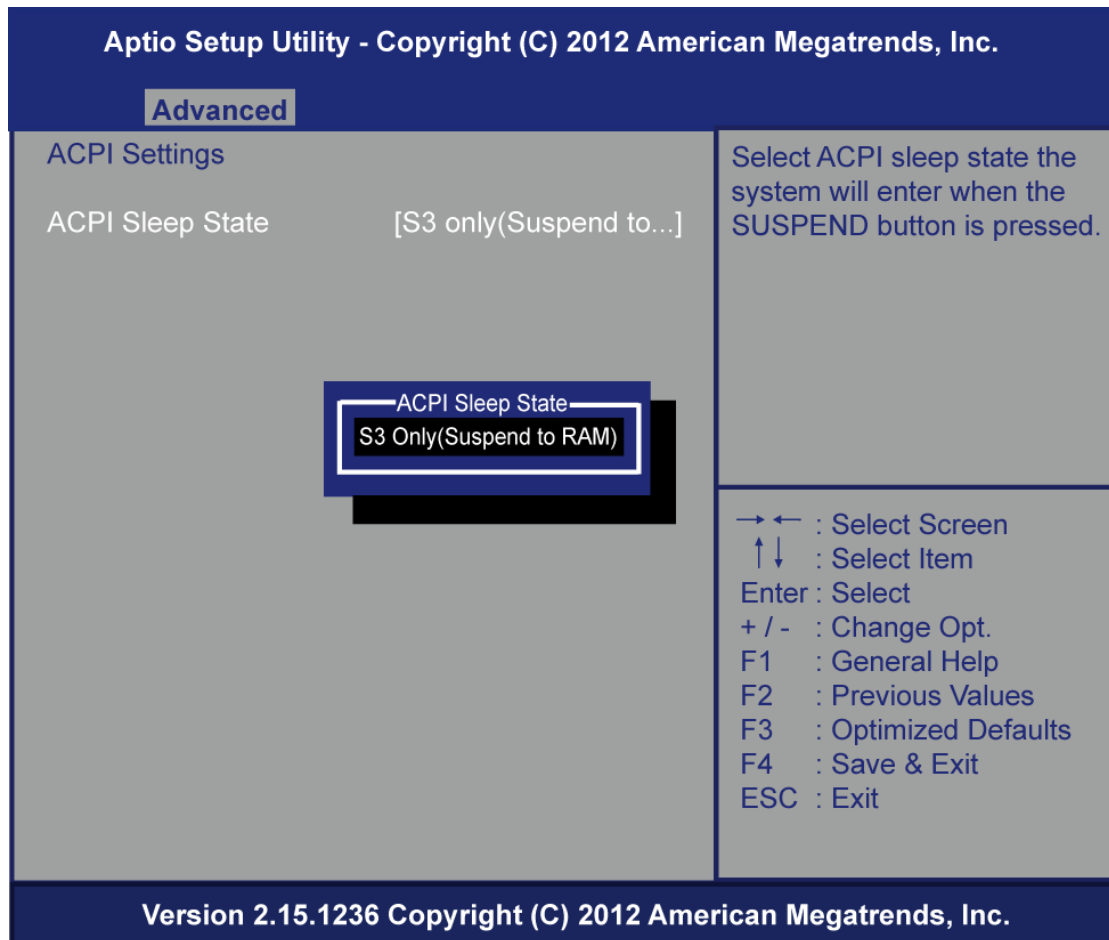
➢ **ACPI Sleep State**

Allow you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Here are the options for your selection, S3 (Suspend to RAM)

● **S5 RTC Wake Settings**

Enable or disable system wake on alarm event. When enabled, System will wake on the hr:min::sec specified
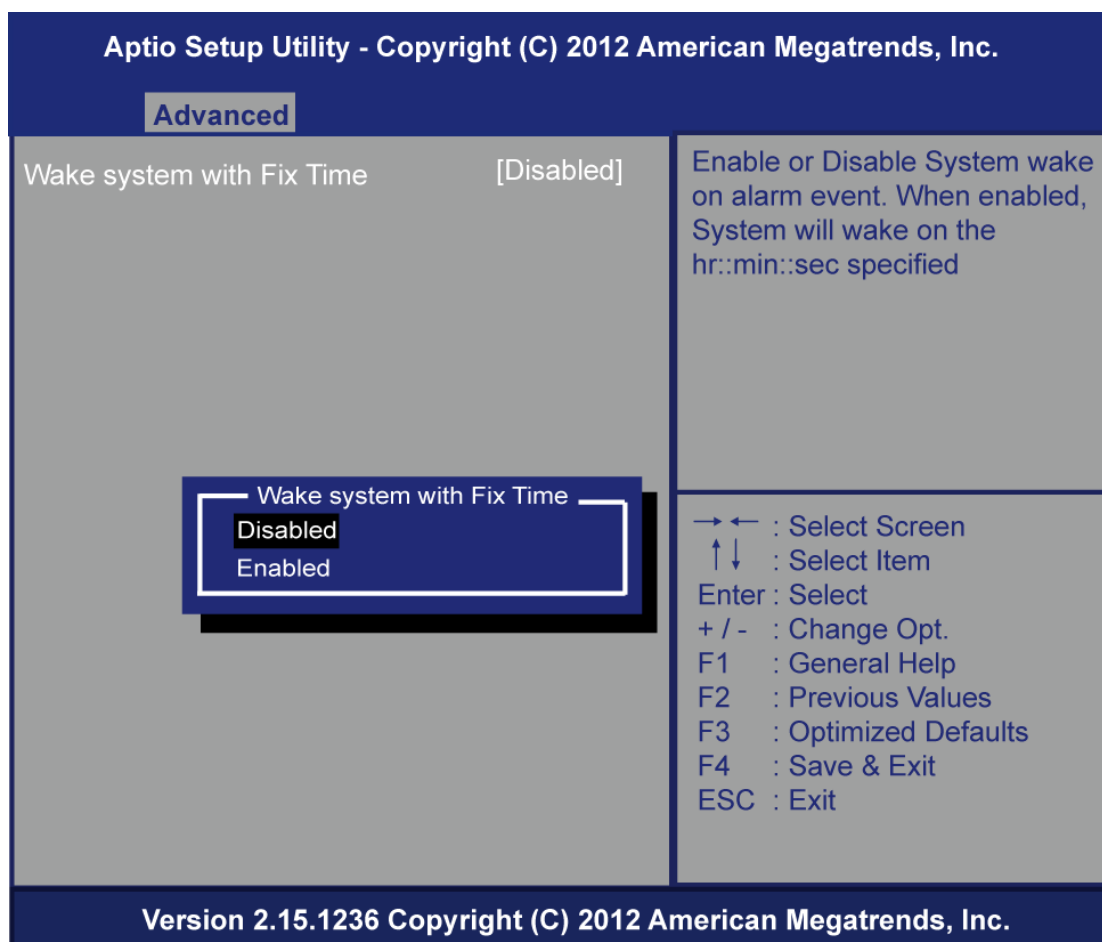
● **Trusted Computing**

Enables or disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

TCG EFI protocol and INT1A interface will not be available.

```
        Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

        Advanced

Configuration                                     Enable/Disable Security
    Security Device Support      [Enable]         Device. NOTE: Your Computer
    TPM State                    [Enabled]        will reboot during restart in
Pending operation                [None]           order to change State of the
                                                  Device.
Current Status Information
    TPM Enabled Status:          [Enabled]
    TPM Active Status:           [Activated]


                ┌─── TPM State ───┐                → ←   : Select Screen
                │ Disabled        │                ↑ ↓   : Select Item
                │ Enabled         │              Enter : Select
                └─────────────────┘              + / -  : Change Opt.
                                                 F1     : General Help
                                                 F2     : Previous Values
                                                 F3     : Optimized Defaults
                                                 F4     : Save & Exit
                                                 ESC   : Exit

        Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```
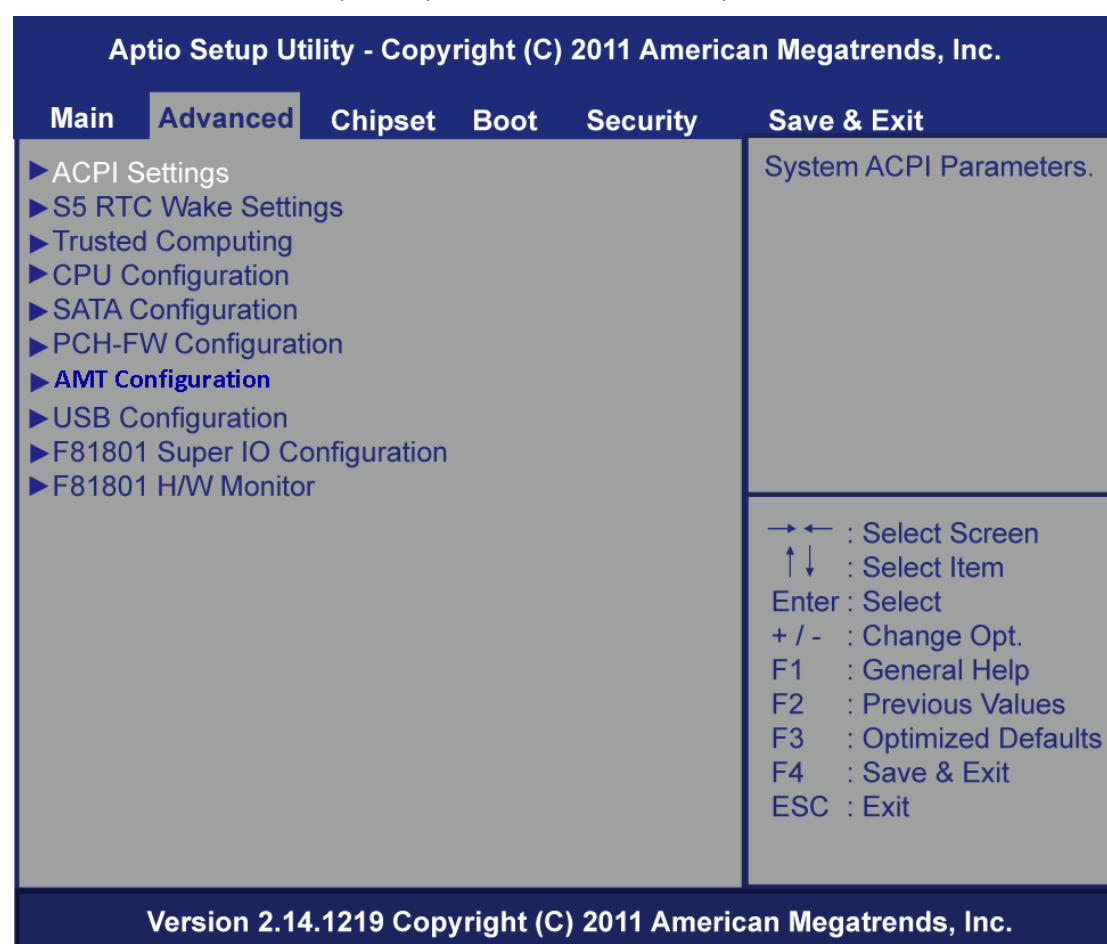
● **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.
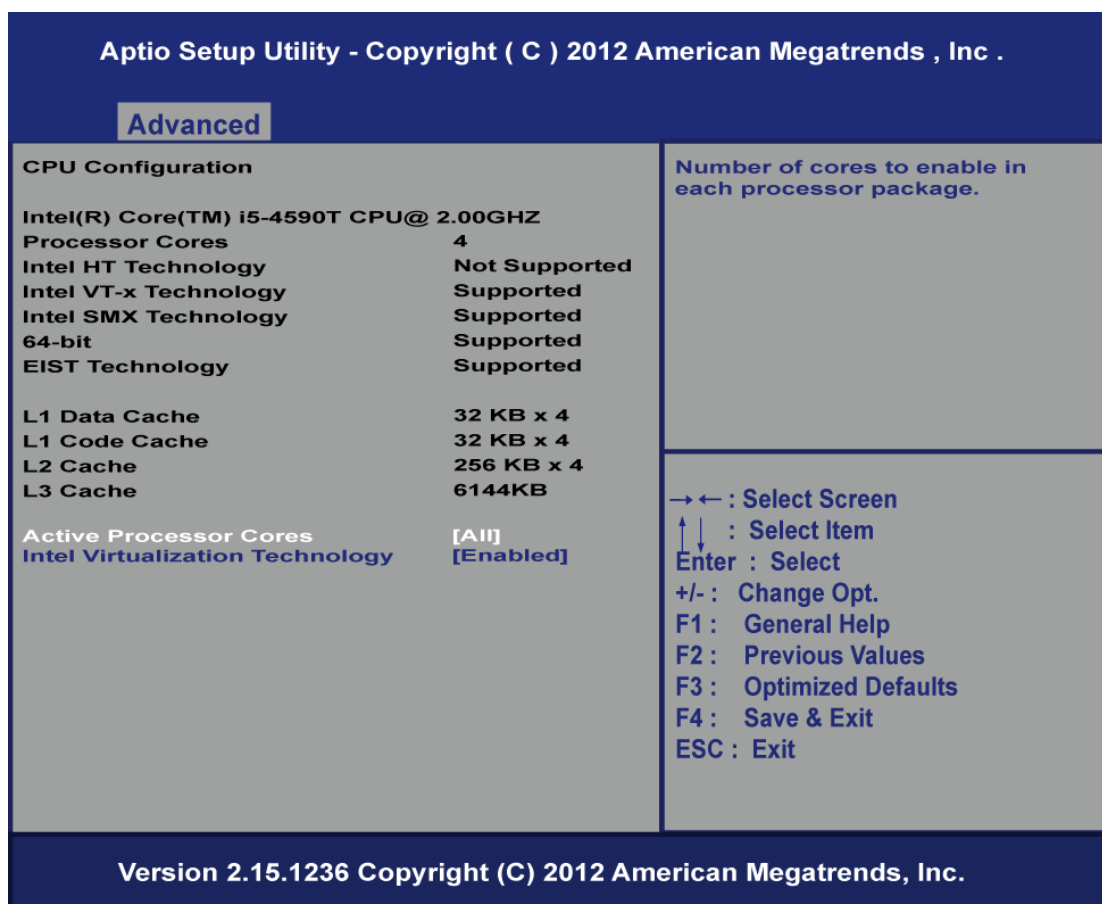
➢ **Active Processor Cores**

To select number of cores is to enable in each processor package.

➢ **Intel Virtualization Technology**

Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

● **SATA Configuration**

You can use this screen to select options for the SATA Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
            Advanced

 SATA Controller(s)              [Enabled]          Enable or disable SATA Device.
 SATA Mode Selection             [AHCI]


 Serial ATA Port 1              Empty
   Software Preserve            Unknown
   Port 1                       [Enabled]

                    ─ SATA Controller(s) ─        →  ←  : Select Screen
                    Enabled                       ↑  ↓  : Select Item
                    Disabled                     Enter : Select
                                                 + / -  : Change Opt.
                                                 F1    : General Help
                                                 F2    : Previous Values
                                                 F3    : Optimized Defaults
                                                 F4    : Save & Exit
                                                 ESC  : Exit

            Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```
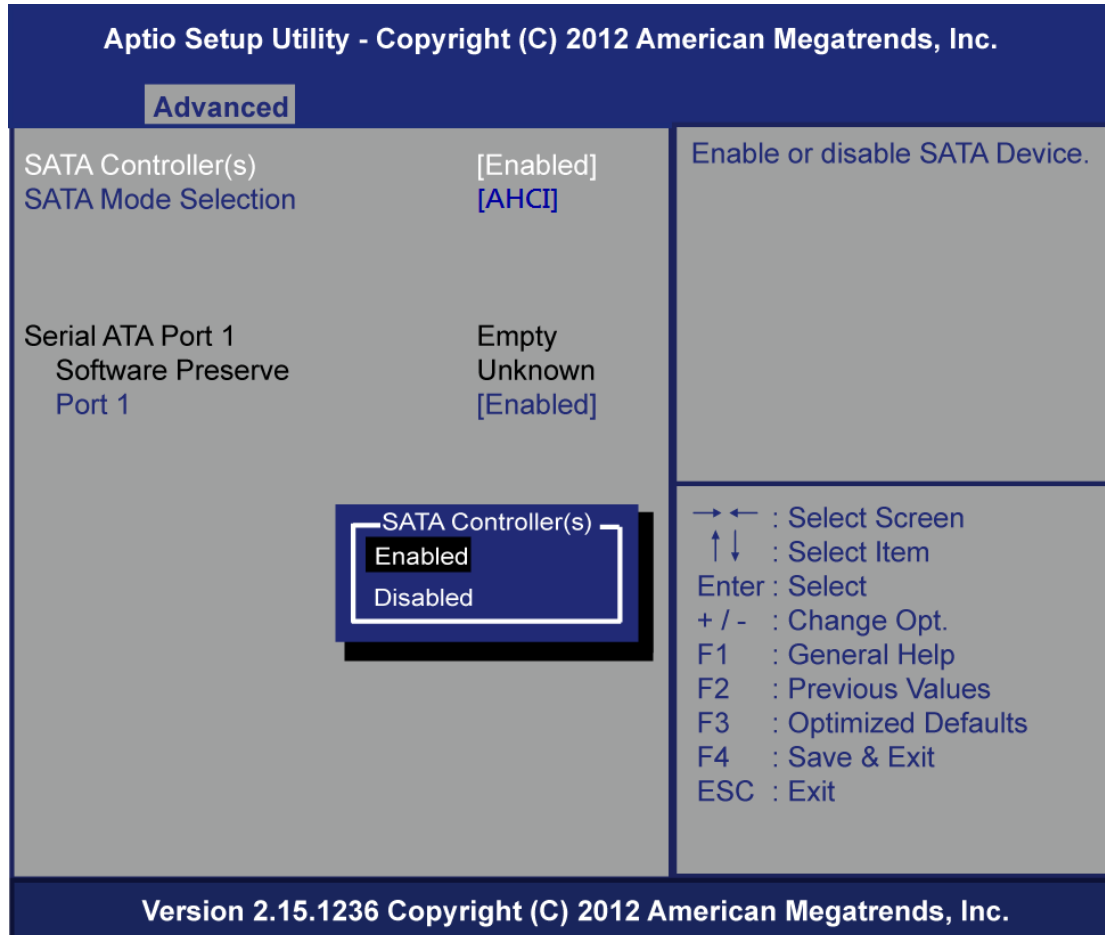
➢ **Serial-ATA Controller(S)**

Use this item to enable or disable the integrated SATA controllers. (Default: Enabled)

➢ **Serial ATA Port 1**

Enable or Disable SATA Port

- **PCH-FW Configuration**

You can use this screen to confirm ME Firmware version.

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

ME FW Version	9.1.10.1005
ME Firmware Mode	Normal Mode
ME Firmware Type	Full Sku Firmware
ME Firmware SKU	1.5MB

→ ← : Select Screen
↑ ↓ : Select Item
Enter : Select
+ / - : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit

Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.

- **AMT Configuration**

Enable/Disable Intel (R) Active Management Technology BIOS extension.

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

Intel AMT	[Disabled]

→ ← : Select Screen
↑ ↓ : Select Item
Enter : Select
+ / - : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit

Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.

● **USB Configuration**

You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.
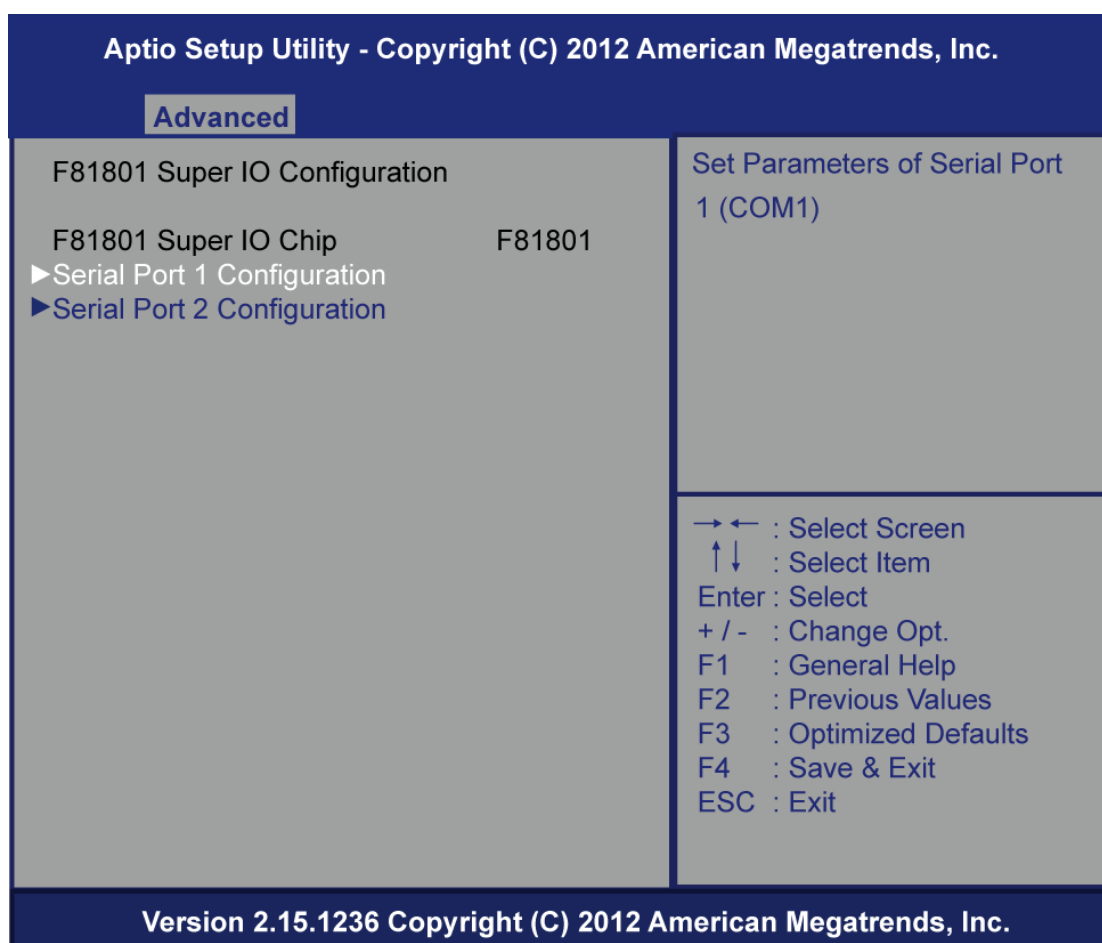
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

		Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected . DISABLE option will keep USB devices available only for EFI applications.
USB Configuration		
USB Module Version	8.10.28	
USB Devices:		
1 Drive, 1 Keyboard, 1 Mouse, 2 Hubs		
Legacy USB Support	[Enabled]	
XHCI Mode	[Smart Auto]	

→ ← : Select Screen
↑ ↓ : Select Item
Enter : Select
+ / - : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit

Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.

➢ **Legacy USB Support**

This is for supporting USB device under legacy OS such DOS, when choosing AUTO", the system will automatically detect any USB device is plugged into the computer and enable USB legacy mode**.** During a USB device plugged and disable USB legacy mode, the USB device will not available in legacy O.S.

● **F81801 Super IO Configuration**

Set parameters of Serial Port 1(COM1)/Serial Port 2(COM2)

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

   Advanced

   F81801 Super IO Configuration               Set Parameters of Serial Port
                                                1 (COM1)
   F81801 Super IO Chip          F81801
  ▶Serial Port 1 Configuration
  ▶Serial Port 2 Configuration




                                                → ← : Select Screen
                                                ↑↓   : Select Item
                                                Enter : Select
                                                + / - : Change Opt.
                                                F1    : General Help
                                                F2    : Previous Values
                                                F3    : Optimized Defaults
                                                F4    : Save & Exit
                                                ESC  : Exit


        Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```
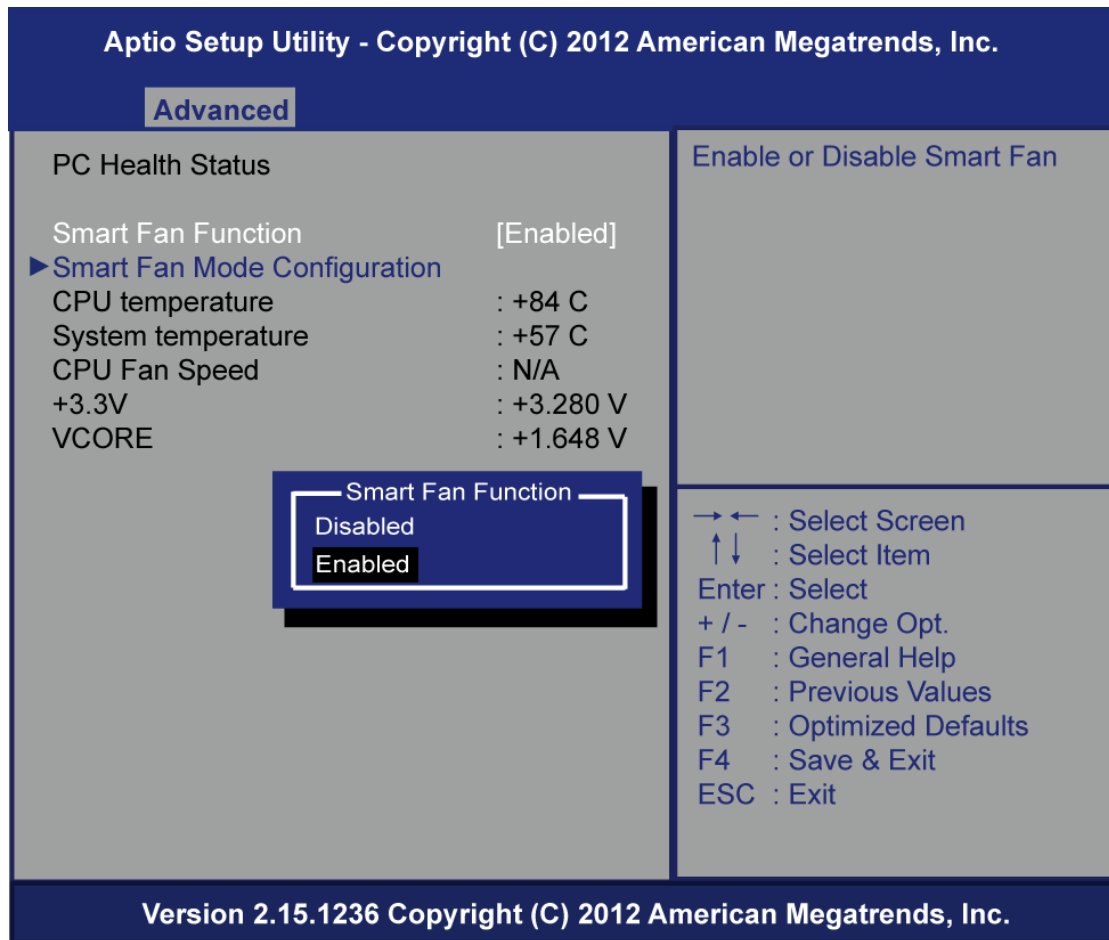
➢ **Serial Port**

Enable or Disable serial port.

➢ **Device Settings**

Display the serial port resource.

● **PC Health Status**

This screen shows the Hardware Health Configuration, and enable or disable smart fan.

4.5   Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

●   **PCH–IO Configuration**

●   **System Agent(SA) Configuration**

● **PCH−IO Configuration**

PCH Azalia Configuration settings

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

              Chipset

Intel PCH RC Version            1.8.0.0          PCH Azalia Configuration
Intel PCH SKU Name              H81              settings.
Intel PCH Rev ID                05/C2

►PCH Azalia Configuration

PCH LAN Controller              [Enabled]
   Wake on LAN                  [Disabled]

                                                 →←  : Select Screen
                                                 ↑↓   : Select Item
                                                 Enter : Select
                                                 + / -  : Change Opt.
                                                 F1    : General Help
                                                 F2    : Previous Values
                                                 F3    : Optimized Defaults
                                                 F4    : Save & Exit
                                                 ESC  : Exit

         Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```

● **PCH Azalia Configuration**

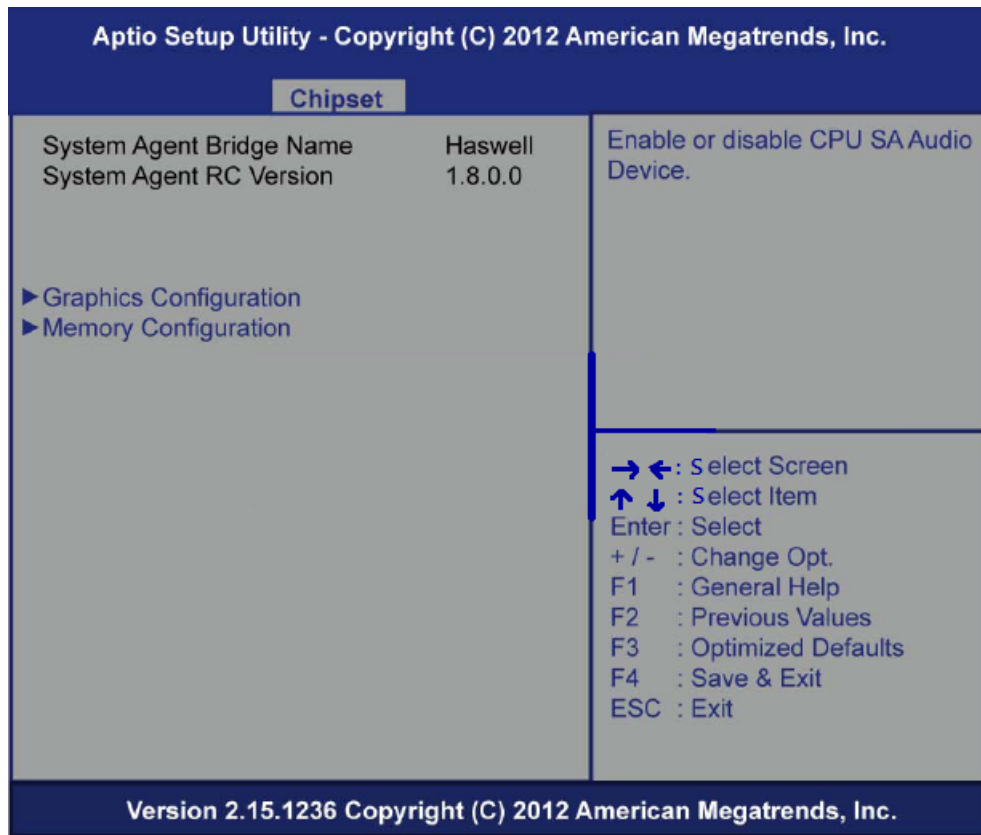Contorl Detection of the Azalia device.

➢ **Azalia**

Enable or disable Azalia device.

● **System Agent(SA) Configuration**

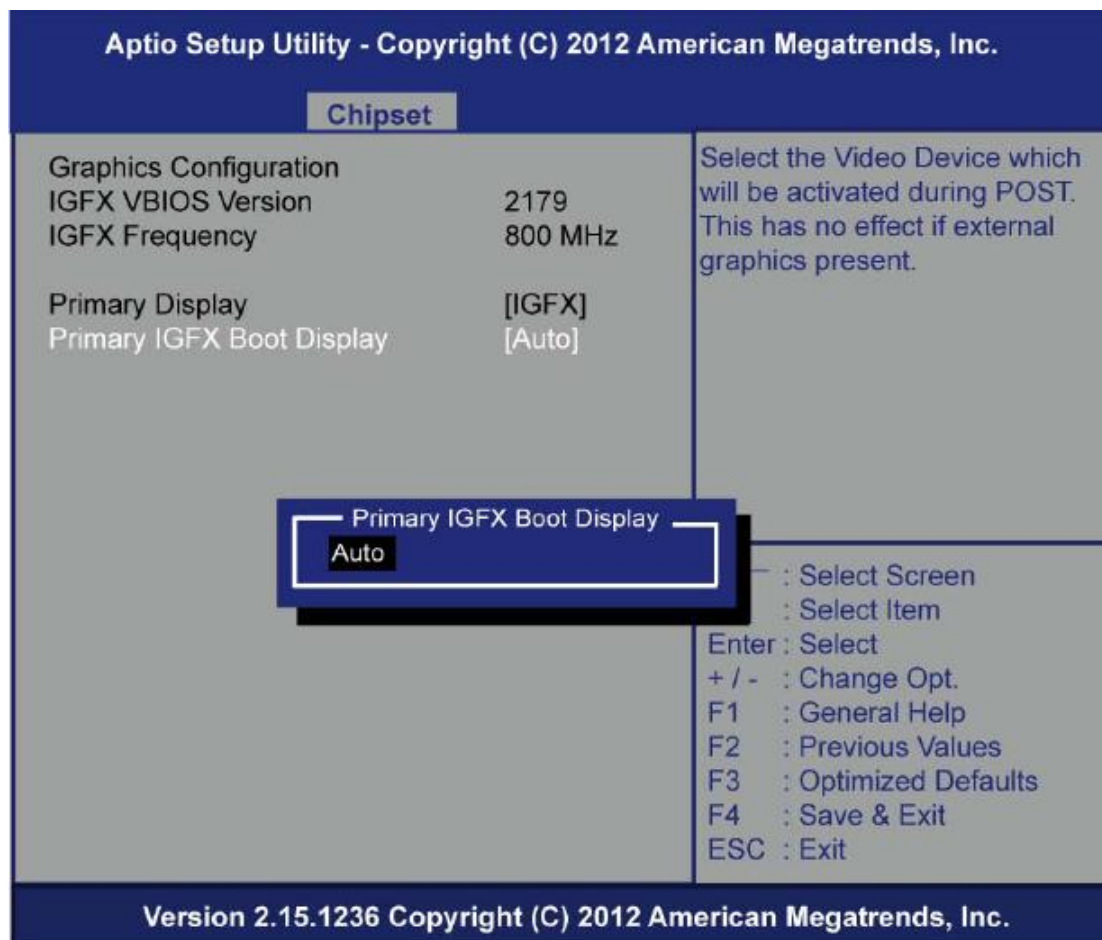To adjust graphics and memory detail configurations.

> ➢ **Graphics Configuration**
>
> Configure graphics settings.
>
> ➢ **Memory Information**
>
> Memory configuration parameters

● **Graphics Configuration**

Select the Video Device which will be activated druing POST.
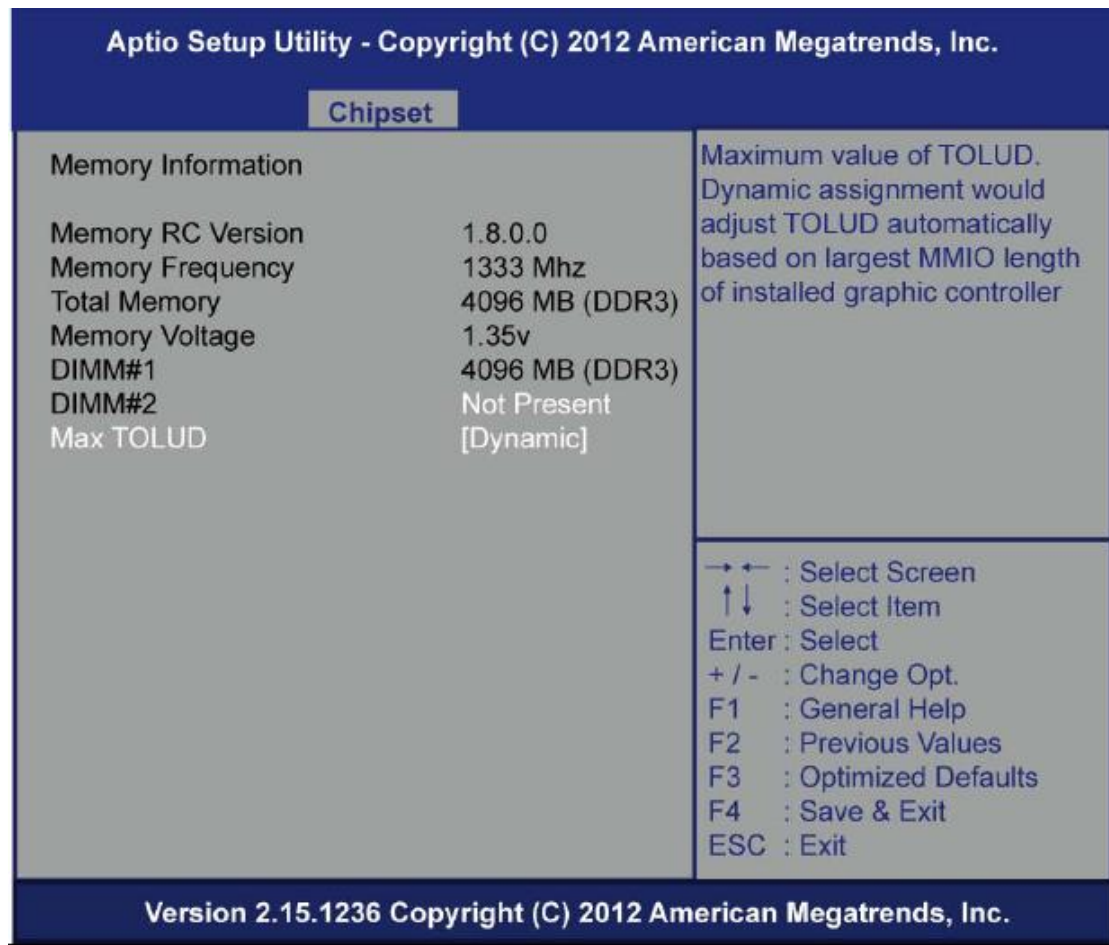
This has no effect if external grpahis present.

➢ **Primary IGFX Boot Display**

Select the video device which will be activated during POST. It has no effect if external graphics presents VGA modes will be supported only on primary display

● **Memory Information**

Memory configuration parameters

➤ **Max TOLUD**

This item allows you to set Maximum Value of TOLUD

4.6   Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

● **Setup Prompt Timeout**

● **Boot up Num Lock State**

● **Quiet Boot**

● **Boot Option Priorities**

➢ **Setup Prompt Timeout**

Set the number of seconds to wait for Setup activation key.

➢ **Boot up Mum Lock State**

Use this item to select the power-on state for the Mum Lock. The default setting is on.

➢ **Quiet Boot**

Use this item to enable or disable the Quite Boot state. The default setting is disabling.

➢ **Boot Option Priorities**

Sets the system boot order

4.7   Security Menu

The Security menu allows users to change the security settings for the system.

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

 Main    Advanced    Chipset    Boot  Security   Save & Exit

 Password Description                           Set Administrator Password

 If ONLY the Administrator's password is set,
 then this only limits access to Setup and is
 only asked for when entering Setup.
 If ONLY the User's password is set, then this
 is a power on password and must be entered to
 boot or enter Setup. In Setup the user will
 have Administrator rights.
 The password length must be
 in the following range:                       →←  : Select Screen
 minimum length            3                    ↑↓  : Select Item
 maximum length            20                   Enter : Select
                                                + / -  : Change Opt.
                                                F1   : General Help
 Administrator Password                         F2   : Previous Values
 User Password                                  F3   : Optimized Defaults
                                                F4   : Save & Exit
                                                ESC  : Exit

          Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```
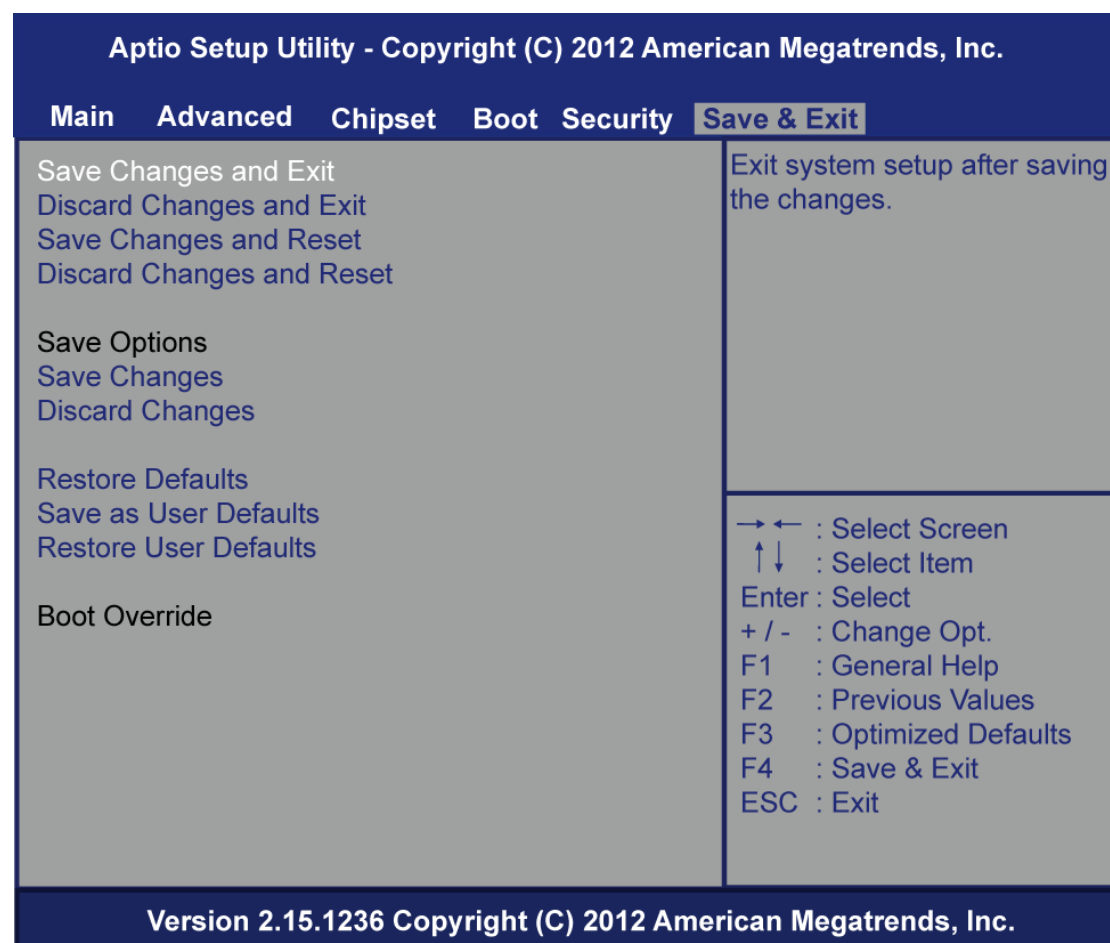
➢ **Administrator Password**

This item indicates whether an administrator password has been set. If the Administrator password is set, BIOS will ask and wait for administrator password entered.

➢ **User Password**

This item indicates whether a user password has been set. If the password is set, BIOS will ask and wait for User password entered

4.8   Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or failsafe default values.

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

  Main    Advanced    Chipset    Boot  Security  Save & Exit

Save Changes and Exit                          Exit system setup after saving
Discard Changes and Exit                       the changes.
Save Changes and Reset
Discard Changes and Reset

Save Options
Save Changes
Discard Changes

Restore Defaults
Save as User Defaults                          → ←  : Select Screen
Restore User Defaults                          ↑ ↓   : Select Item
                                               Enter : Select
Boot Override                                  + / -  : Change Opt.
                                               F1    : General Help
                                               F2    : Previous Values
                                               F3    : Optimized Defaults
                                               F4    : Save & Exit
                                               ESC  : Exit

             Version 2.15.1236 Copyright (C) 2012 American Megatrends, Inc.
```

➢ **Save Changes and Exit**

When you have completed the system configuration changes, select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit BIOS Setup.

➢ **Discard Changes and Exit**

This option provide quit Setup without making any permanent changes to the system configurationSelect Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit BIOS Setup.

➢ **Save Changes and Reset**

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

➢ **Discard Changes and Reset**

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

➢ **Save Changes**

When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

➢ **Discard Changes**

Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

➢ **Restore Defaults**

It automatically sets all Setup options to a complete set of default settings when you select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Restore Defaults from the save & Exit menu and press <Enter>.

➢ **Save as User Defaults**

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

➢ **Restore User Defaults**

It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

APPENDIX A
REFERENCE DOCUMENTS

Document	Document No./Location
Digital Signage Open Pluggable Specification	324427
JAE TX24/TX25 connector product brief	http://jae-connectors.com/en/pdf/2008-40-TX24TX25.pdf
JAE plug connector details and drawing	http://jae-connectors.com/en/product_en.cfm?l_code=EN&series_code=TX24/TX25&product_number=TX25-80P-LT-H1E
JAE receptacle connector details and drawing	http://jae-connectors.com/en/product_en.cfm?l_code=EN&series_code=TX24/TX25&product_number=TX24-80R-LT-H1E

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APPENDIX B
WATCHDOG TIMER

Watchdog Timer Setting

After the system stops working for a while, it can be auto-reset by the Watchdog Timer. The integrated Watchdog Timer can be set up in the system reset mode by program.

Using the Watchdog Function Start

1.Enable configuration(Following is example to enable configuration by using debug)

    -O 2E 87

    -O 2E 87

2. Select Logic device:

    -O 2E 07

    -O 2F 07

3. WDT Device Enable

    -O 2E 2B

    -O 2F 00

    -O 2E 30

    -O 2F 01

4. Activate WDT:

    -O 2E F0

    -O 2F 80

5. Set base timer:

    -O 2E F6

    -O 2F 0A ➜Set Reset Time (Ex. A: 10 Sec)

6. Set timer unit

    -O 2E F5

    -O 2F 71(1: Sec ; 9: Minute)

7. Disable WDT

    -O 2E 30

    -O 2F 00

Appendix C
iAMT Settings

The Intel® Active Management Technology (Intel® iAMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel® iAMT you must enter the ME BIOS (<Ctrl + P> during system startup), change the ME BIOS password, and then select "Intel® iAMT" as the manageability feature.

C.1   Entering MEBx

1. Go to BIOS to enable iAMT function (see section 4.4).
2. Exit from BIOS after starting iAMT, and press <Ctrl + P> to enter MEBx Setting.

> **It is better to press <Ctrl + P> before the screen popping out.**
>
> **Note**

C.2   Set and Change Password

1. You will be asked to set a password when first log in. The default password is "admin".

```
Intel(R) Management Engine BIOS Extension v9.0.0.0024/Intel(R) ME v9.0.1.1333
         Copyright(C) 2003-12 Intel Corporation.  All Rights Reserved.

                               MAIN MENU

MEBx Login
>  Intel(R) ME General Settings
>  Intel(R) AMT Configuration
   MEBx Exit




        Intel(R) ME Password

[↓↑] = Move Highlight      [Enter] = Select Entry      [Esc] = Exit
```
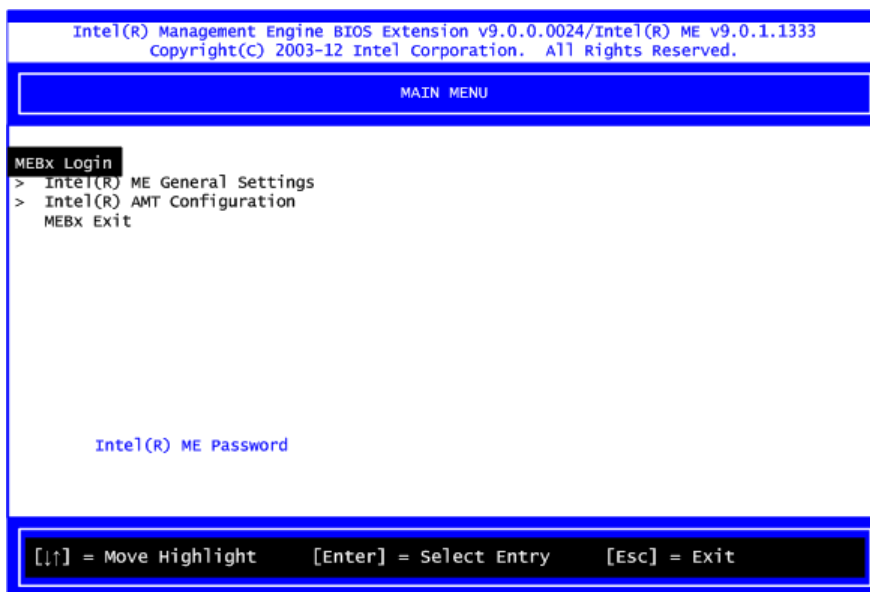
2. You will be asked to change the password before setting ME.
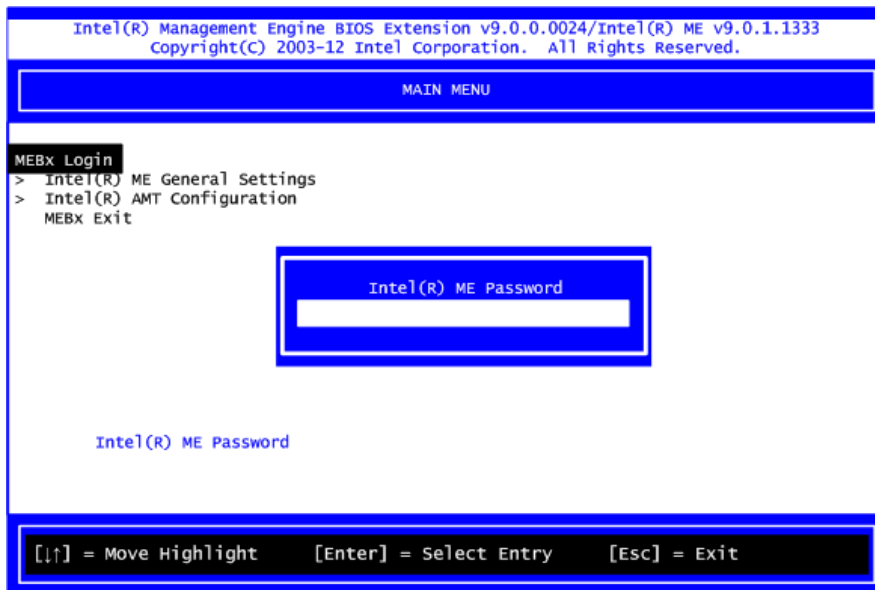
3. You must confirm your new password while revising. The new password must contain: (example: **!!11qqQQ**) (default value).

  ● Eight characters
  ● One upper case
  ● One lower case
  ● One number
  ● One special symbol, such as ! 、 $ or ; ，(、 " ，excepted)

  Underline (_) and space are valid characters for password, but they won't make higher complexity.
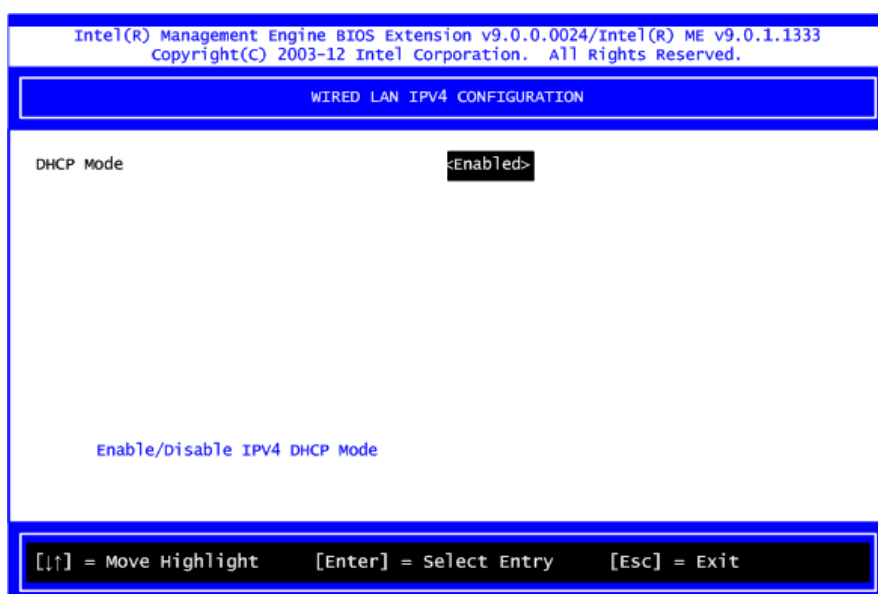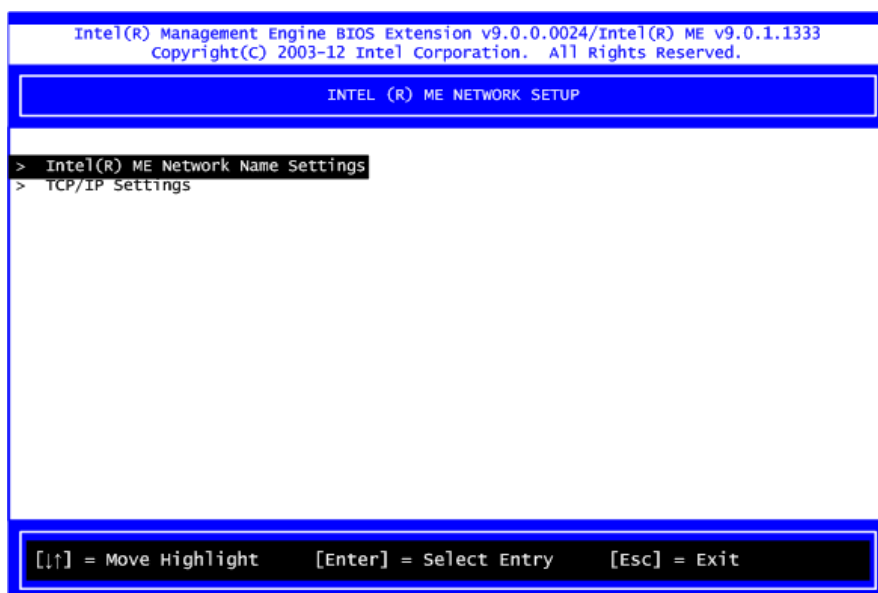
C.3   iAMT Settings

Select Intel® iAMT configuration and press <Enter>.
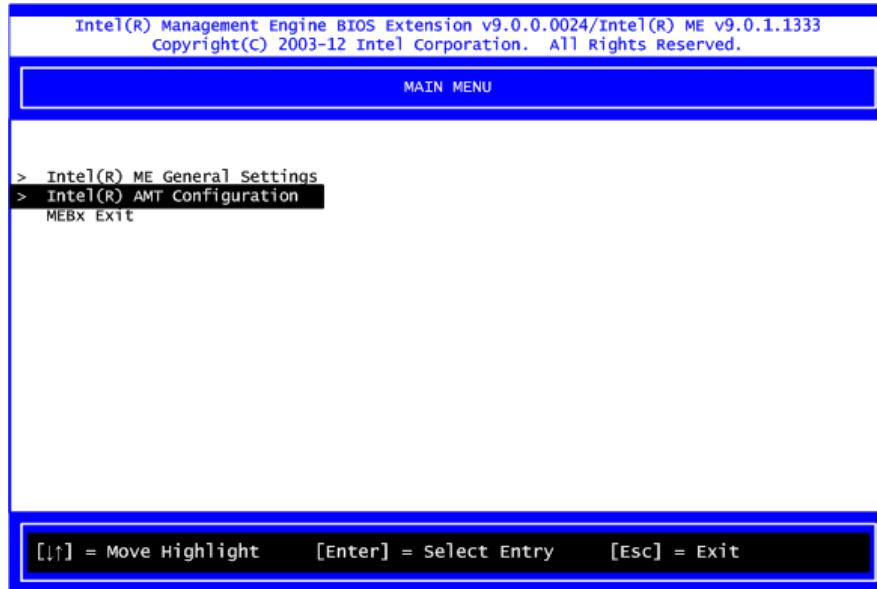
1.   Select Network Setup to configure iAMT.
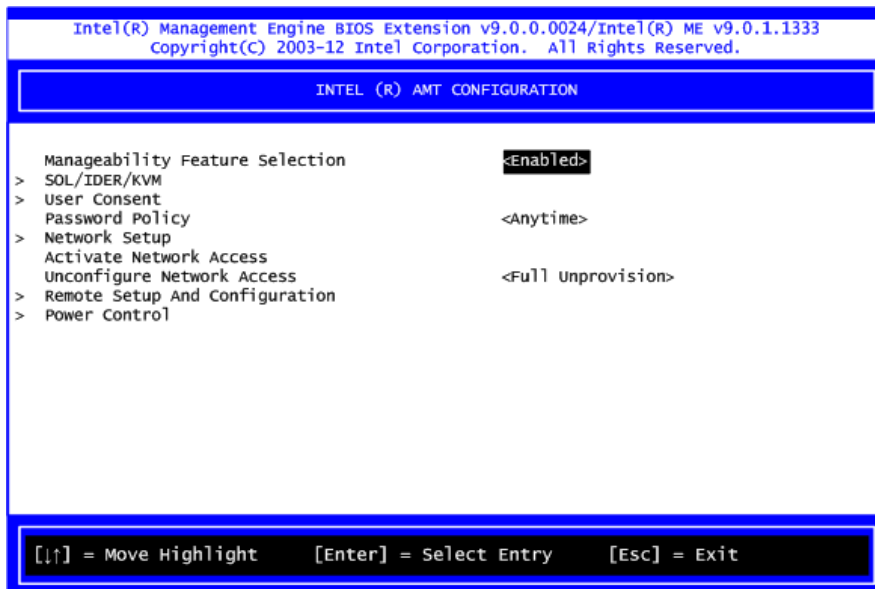
2. Select TCP/IP to get into Network interface and set it to Enabled. Get into DHCP Mode and set it to Disabled.

3.   If DHCP Mode is disabled, set the following settings:

- IP address
- Subnet mask

4.   Go back to Intel$^®$ iAMT Configuration, then select Activate Network Access and press <Enter>.

5.   Exit from MEBx after completing the iAMT settings.

C.4　iAMT Web Console

1. From a web browser, please type http://(IP ADDRESS):16992, which connects to iAMT Web.
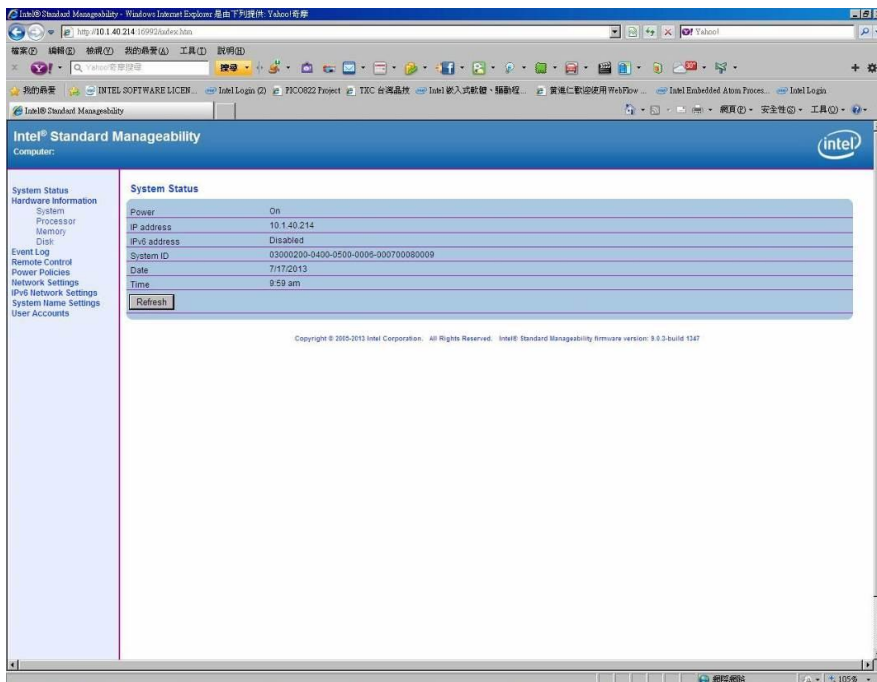
   Example: http://10.1.40.214:16992
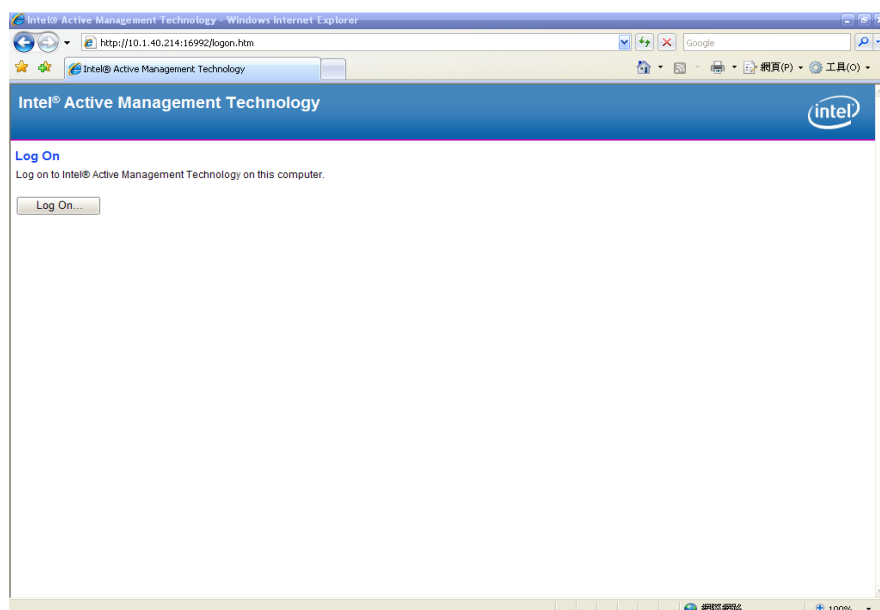
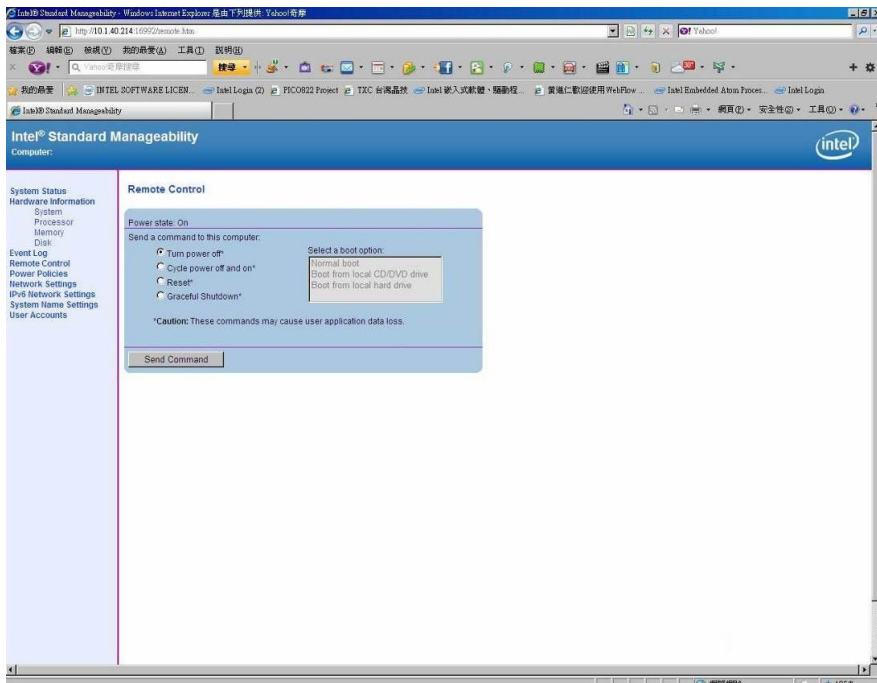2. To log on, you will be required to type in username and password for access to the Web.

   USER: admin (default value)
   PASS: (MEBx password)

3.   Enter the iAMT Web.

4.   Click Remote Control, and select commands on the right side.

5.   When you have finished using the iAMT Web console, close the Web browser.

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